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VERIFYING THE CHEMICAL WEAPONS CONVENTION:
THE CASE FOR A
UNITED NATIONS VERIFICATION AGENCY

by

Randall W. Waldrip

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Potential benefits of a permanent verification agency presented in this thesis center on the need for sharing heavy CWC verification costs, the unique challenges in monitoring multinational treaties, and the advantages of an in-place body to address difficult verification concerns prior to treaty implementation.

Verifying a Chemical Weapons Convention will require tremendous financial resources and enhance the need for organizational efficiency and economy. A permanent UN verification agency could provide the forum for coordinating verification resources and advancing new proposals in arms control verification.

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Verifying the Chemical Weapons Convention: The Case for a United Nations Verification Agency

by

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of the requirements for the degree of

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I. INTRODUCTION

A. BACKGROUND

"If I am remembered for anything, it would be this, a complete and total ban on chemical weapons." Those are the words of President George Bush.[1] However, despite the progress achieved thus far by the United Nations Conference on Disarmament in Geneva, many critical issues remain unresolved in the search for a worldwide ban on chemical weapons. Foremost among these issues is the need to develop a suitable verification regime required to monitor universal adherence to complete chemical disarmament. This thesis will argue that, in order to successfully conclude a Chemical Weapons Convention (CWC), the United States should reverse its long-held position against a United Nations role in multilateral arms control verification.

Chemical weapons were once considered a capability available only to the major military powers. Twenty years ago, only five countries were estimated to possess chemical weapons. However, chemical weapons are relatively inexpensive and simple to manufacture. Today, U.S. officials believe that as many as 23 countries currently possess or are attempting to

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[1] Remarks at the University of Toledo, Toledo, OH, 21 October 1988. Press Release, Office of the Vice-President.

acquire chemical weapons. Eight others may be considering the acquisition of these weapons.[2] Despite the widespread international condemnation of chemical warfare, Third World conflicts have increasingly incorporated the use of chemical weapons. Charges of chemical weapons use have been made against at least nine countries in the last decade alone.[3]

Recognizing the consequences of unchecked chemical weapons proliferation, in June 1990, the United States and the Soviet Union signed a bilateral Chemical Weapons Agreement. Following years of intense negotiations, exacting destruction and verification procedures were agreed upon. However, this bilateral progress does nothing to halt chemical weapons proliferation and use throughout the Third World. Only a verifiable treaty which bans the development, production, possession, transfer, and use of chemical weapons can contain the global chemical weapons threat. Problems of verification remain the single largest obstacle to the conclusion of such a treaty.

A verification regime to monitor the CWC will presumably require a large international inspectorate to carry out the

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[2] Steven R. Bowman, "Chemical Weapons Proliferation: Issues for Congress," In CRS Review, Congressional Research Service, Foreign Affairs and National Defense Division. The Library of Congress, 19 July 1991, 1.

[3] Ian Kemp, "Verification the Key to Global Chemical Ban," Jane's Defense Weekly," 7 October 1989, 704. and Tony Banks, "Fighting to Stem the Tide: International Attempts to Halt Proliferation of Chemical Weapons Have Met With Little Success," Jane's Defense Weekly, 14 July 1990, 51.

conventions' inspection and monitoring provisions. That international inspectorate does not currently exist. In the past, numerous proposals were submitted to expand the role of the United Nations to include verification of multilateral treaties. Supporters argued that an international monitoring and verification agency under UN auspices might help to facilitate global and regional disarmament - chemical weapons included. The United States is the only state within the United Nations to oppose an expanded UN verification role.[4] Contrary to the U.S. vote, the United Nations may be the best organization to handle the unique and complex arms control challenges involved in multilateral verification duties.

Recently, the United States supported an important verification role for the United Nations in monitoring the post-war disarmament of Iraq. In doing so, the United States acknowledged that some verification roles do exist for the United Nations and that multilateral verification is politically practical. This thesis will show that a permanent multilateral verification regime under UN auspices is not only necessary, but will offer certain advantages over the current ad hoc method of treaty verification.

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[4] United Nations, Department for Disarmament Affairs, The United Nations Disarmament Yearbook 1988, Vol 13, 1989, 368.

B. METHODOLOGY

In an attempt to prescribe the nature and potential benefits of a permanent United Nations verification agency, this thesis will analyze two international bodies which were created to administer specific verification roles. First, the safeguards program of the International Atomic Energy Agency (IAEA), designed to halt nuclear proliferation, is examined as a possible institutional model for meeting the multilateral verification requirements of a CWC. Secondly, the creation of a Special UN Commission, mandated to locate and destroy Iraq's chemical arsenal, is studied for possible application to the CWC.

However, both of these examples, the IAEA and the UN cease-fire commission, develop serious drawbacks when an attempt is made to define conclusive parallels to the Chemical Weapons Convention. The safeguards system of the IAEA was designed to detect the diversion of significant quantities of fissionable materials and to deter the misuse of nuclear material for military purposes. Unfortunately, many of the chemical agents used in the production of chemical weapons have alternate peaceful uses. Attempts to restrict access to these chemicals are often viewed as unwarranted infringement upon sovereign rights. Additionally, unlike nuclear weapons, the technology required to manufacture chemical weapons is readily available and export controls are not likely to be as effective for a CWC.

The special UN commission monitoring the post-war disarmament of Iraq may also display serious weaknesses when evaluated as a model for a permanent UN agency. Iraq has been forced to comply with requests of the commission as part of its mandated cease-fire agreement. Most other inspection regimes are based upon prior consent to intrusive verification procedures. Most importantly, the threat of force to ensure compliance will unlikely be included in a CWC.

This thesis investigates the potential benefits of a permanent UN verification agency by first looking at the historical background of controlling chemical weapons. That background reveals that verification provisions have been the guaranteed stumbling block to all chemical disarmament attempts. Proposals for a permanent UN verification agency are discussed and reasons for current U.S. opposition to such an agency are reviewed. Potential benefits as well as possible drawbacks to a UN verification agency are then introduced. Next, the safeguards program of the IAEA is studied as a possible institutional model for halting chemical proliferation, followed by an appraisal of the UN special commission in Iraq. Comparing the similarities and dissimilarities of these cases to the multilateral control of chemical weapons determines what possible benefits a permanent UN verification agency might play in the successful completion of a Chemical Weapons Convention.

II. HISTORICAL BACKGROUND OF CONTROLLING CHEMICAL WEAPONS

A. PROLIFERATION

Current international law bans only the use of poison gas and other chemical weapons in wartime. The testing, manufacture, possession, or domestic use of chemical weapons is legal. Additionally, chemical warfare (CW) agents are comparatively simple to manufacture and their means of delivery are within the military capabilities of many nations. States not able to produce their own chemical weapons indigenously can acquire these weapons from other CW states.

The effectiveness and relative ease of production led Iranian leader Hashemi Rafsanjani to first describe chemical weapons as "the poor man's atomic bomb."[5] It is in the third world that chemical weapons have proliferated the most.

Twenty years ago, only five countries were estimated to possess chemical weapons.[6] Recent estimates of nations possessing chemical weapons indicate that a growing number of states have chosen to acquire this "poor man's atomic bomb." Table 1 is a listing of 32 possible chemical weapon states.

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[5] Ian Kemp, "Verification the Key to Global Chemical Ban," Jane's Defense Weekly, 7 October 1989, 704.

[6] Kathleen C. Bailey, "Chemical Weapons Proliferation: Reliable and Effective Control," Vital Speeches of the Day, 1 October 1988, 749.

TABLE 1: U.S. ESTIMATES OF CHEMICAL WEAPONS PROLIFERATION[7]

ACKNOWLEDGED POSSESSING	SUSPECTED OF POSSESSING OR ATTEMPTING TO ACQUIRE	MAY BE CONSIDERING ACQUIRING CW
United States	Bulgaria	Argentina
Soviet Union	Burma	Brazil
Iraq	China	Chile
Iran	Czechoslovakia	India
	Egypt	Pakistan
	Ethiopia	Peru
	France	Saudi Arabia
	Hungary	South Korea
	Indonesia	
	Israel	
	Laos	
	Libya	
	North Korea	
	Romania	
	South Africa	
	Syria	
	Taiwan	
	Vietnam	
	Yugoslavia	

In March 1991, the Director of Naval Intelligence, Adm. Thomas A. Brooks, noted the spread of chemical weapons

[7] Bowman, "Chemical Weapons Proliferation: Issues for Congress," 1.

"continues with little or no sign of abating."[8] In recent years, unsubstantiated allegations of chemical weapons use have been made against Vietnam, Cuba, Libya, Iran, Somalia, Angola, Ethiopia, and the Soviet Union.[9] Despite these allegations, one nation has done more to raise the level of international concern about chemical warfare than any other. That nation is Iraq.

The Iraqi threat to use chemical agents during its invasion of Kuwait in 1990, and Iraq's confirmed use of chemicals against its own Kurdish population in 1988, have brought chemical warfare back into the international spotlight. That spotlight has waned on and off since the First World War.

B. GENEVA PROTOCOL, 17 JUNE 1925

The extensive use of chemical agents in World War I caused some 1,3000,000 casualties, more than 100,000 of them fatal.[10] Those tragic figures led to a strong condemnation of the use of chemical agents and a global awareness for the need to prevent future chemical warfare.

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[8] Michael Wines, "Navy Report Asserts Many Nations Seek or Have Poison Gas," New York Times, 10 March 1991, 15.

[9] Kemp, "Verification the Key," 704 and Banks, "Fighting to Stem the Tide," 51.

[10] United Nations, Department for Disarmament Affairs, The United Nations Disarmament Yearbook 1989, Vol. 14, 1990, 235.

At the 1925 Geneva Conference for the Supervision of the International Traffic in Arms, the United States sought to include a prohibition on the export of gases for use in war. France suggested a separate protocol on the non-use of poisonous gases, and bacteriological weapons were included at the suggestion of Poland.[11] The Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous, and Other Gases, and of Bacteriological Methods of Warfare, commonly known as the Geneva Protocol, was signed on 17 June 1925.

While prohibiting the use of poisonous gases in war, many nations declared that the protocol would cease to be binding on them if their enemies, or allies of their enemies, failed to respect the prohibitions of the protocol. The United States helped negotiate and signed the treaty, but because of strong lobbying against it, the U.S. Senate refused to approve ratification. The protocol was withdrawn by President Truman in 1947 following the Second World War.[12]

During the Vietnam War, Communist countries strongly criticized the U.S. use of tear gas and chemical herbicides. The United States, which had always supported and observed the principles of the protocol, was the only major military power still not party to it. On 19 August 1969, President Nixon

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[11] U.S. Arms Control and Disarmament Agency, Arms Control and Disarmament Agreements: Texts and Histories of the Negotiations, (Washington, D.C.:GPO, 1990), 10.

[12] Ibid., 10-11.

resubmitted the protocol to the Senate. He reaffirmed the U.S. position that the protocol did not apply to riot-control agents and herbicides. Additionally, the United States reserved the right to retaliate with gas if an enemy violated the protocol. The Ford Administration finally obtained Senate ratification, and the Geneva Protocol received Presidential ratification on 22 January 1975.[13]

The 1925 Geneva Protocol contains no provisions for verification or enforcement. Recognizing the inherent weaknesses of a treaty lacking in verification or compliance procedures, the international community has continued to strive for means to strengthen the protocol.

C. BIOLOGICAL WEAPONS CONVENTION, 10 APRIL 1972

In 1948, the United Nations Commission for Conventional Armaments defined chemical and biological weapons as weapons of mass destruction. The first UN resolution devoted specifically to chemical and biological warfare came in 1966, and was subsequently addressed by the Eighteen-Nation Committee on Disarmament in 1968.

The Soviet Union and other Eastern European States supported a convention that combined biological and chemical weapons. They argued that both weapon types had been treated together in the Geneva Protocol and should continue to be

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[13]Ibid., 15.

linked in future disarmament agreements. Those states believed that a separate approach to biological weapons would not only delay a ban on chemical weapons but might intensify the chemical arms race.[14]

The United States favored separate treaties, though it did not consider the prohibition of chemical weapons to be any less important than a ban on biological weapons. Biological weapons were of limited military use, and the United States believed a ban on biological weapons alone could be achieved at an earlier date. Unlike biological weapons, chemical weapons had been used in modern warfare. The United States maintained that chemical weapon states would be reluctant to give up CW capability without strict verification assurances that other states were not developing or stockpiling chemical weapons. Since binding verification provisions were not included in any of the draft conventions, the United States believed a ban on chemical weapons was not feasible.

In 1971, the Soviets reversed their position on the separation of biological and chemical weapons. One year later, on 11 April 1972, the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction was opened for signature. The United States approved final ratification of The Biological Weapons Convention (BWC) on 26

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[14] United Nations, Disarmament Yearbook 1989, 236.

March 1975. By the end of 1989, 111 States were parties to the BWC.[15]

Like the Geneva Protocol proposed five decades earlier, the BWC was extremely deficient in verification and compliance arrangements. Article V of the BWC encouraged parties to "consult one another and to cooperate in solving any problems," and Article VI specified that states suspecting a violation "may lodge a complaint with the Security Council of the United Nations."[16] These vague and ineffectual verification clauses led to growing international awareness for strengthened verification provisions in an eventual ban on chemical weapons.

D. EVOLUTION OF THE CHEMICAL WEAPONS CONVENTION

Immediately after agreement to delete chemical weapons from the proposed draft on the Prohibition of Chemical and Bacteriological Weapons, chemical weapons began to be debated independently by the Conference on Disarmament (CD). From 1972 onwards, numerous proposals were submitted, including complete texts of draft conventions. Differences over verification provisions remained the core of most debate.

In 1972, the Soviet Union proposed a draft treaty with wording identical to the convention on biological weapons.

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[15] Ibid., 237.

[16] U.S. Arms Control and Disarmament Agency, Arms Control and Disarmament, 134.

The draft treaty was not considered acceptable for two basic reasons. First, it ignored the differences between chemical and biological weapons, a subject of years of UN discussion. Second, a majority of states believed that fundamental questions of verification had to be addressed to reach a new agreement limiting chemical warfare.[17]

Parallel to multilateral negotiations conducted by the Conference on Disarmament, the United States and Soviet Union conducted bilateral negotiations. Prompted by the Moscow summit of 1974, the superpowers began these discussions in 1976. Common understandings were reached over the classification of chemical agents, declaration and destruction of stockpiles, and a basic time schedule for implementation. Additionally, both sides supported the establishment of a consultative committee to handle technical issues, data exchange, and verification provisions.[18] However, Soviet resistance to on-site inspections remained the most significant obstacle to concluding a bilateral Chemical Weapons Agreement (CWA).[19] In 1980, the United States

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[17] A. Jack Ooms, "Chemical Weapons: Is Revulsion a Safeguard?," The Atlantic Community Quarterly, (Summer 1986): 161.

[18] Ibid.

[19] V.L. Israelyan, Soviet delegate at the Committee on Disarmament on March 31, 1981 and March 25, 1982 in Verification: the Soviet Stance, Its Past, Present and Future, United Nations Institute for Disarmament Research, (UNIDIR/90/34 1990): 82.

terminated the apparently stalled talks in protest of the Soviet invasion of Afghanistan.[20]

Multilateral talks were strengthened in 1981 when an ad hoc working group of the Geneva Conference on Disarmament was established to deal specifically with the chemical weapons question. In 1984, the United States submitted a proposed full text of a Draft Convention on the Prohibition of Chemical Weapons.[21] That draft "rolling text," with brackets and gaps to indicate areas of disagreement, provides the basic text for the current Chemical Weapons Convention.

A breakthrough on verification procedures occurred on 15 January 1986 when the Soviets reversed their stance on intrusive verification. Conference on Disarmament document 649, submitted by General Secretary of the CPSU Central Committee, Mikhail Gorbachev, stated in part:

> "We are prepared to ensure timely notification of the location of plants producing chemical weapons and the cessation of such production, and are ready to start working out procedures for destroying the relevant industrial facilities, and also to proceed, soon after the convention enters into force, to destroy the stockpiles of chemical weapons. All these measures would be carried out under strict control, including international on-site inspection."[22]

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[20] Ooms, "Is Revulsion a Safeguard?," 161.

[21] United Nations, Department for Disarmament Affairs, The United Nations Disarmament Yearbook 1984, Vol. 9, 1985: Appendix VII, 559.

[22] United Nations, United Nations Institute for Disarmament Research, Verification: the Soviet Stance, Its Past, Present and Future (UNIDIR/90/34 1990): 83.

As a result of that reversal regarding inspections upon request, the Soviet Union opened the way for further progress in the elaboration of the draft rolling text by the Conference on Disarmament. Broad verification provisions now included:

- the need for an international inspectorate to carry out the convention's inspection and monitoring provisions;
- international on-site verification of declared stockpiles;
- procedures for using remote monitoring instruments;
- requirements to verify destruction of chemical weapons producing facilities (though exact methods were not agreed upon).[23]

However, many issues remained unresolved, including the design of an international organization to carry out the verification duties outlined above. Additionally, many technical deficiencies existed in the development of necessary instruments and monitoring devices required to monitor a CWC. The exacting details of the verification process have produced the greatest obstacles to concluding a final agreement. Present multilateral verification discussions remain centered on inspection procedures and the organizational and procedural structure of the body that will administer the convention.[24]

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[23] Ibid., 84-85. and Lewis A. Dunn, "Chemical Weapons Arms Control: Hard Choices for the Bush Administration," Survival, (May/June 1988): 212.

[24] Steven R. Bowman, "Chemical Weapons: U.S. Arms Control Negotiations and Destruction," CRS Issues Brief, updated 19 July 1991, Congressional Research Service, Foreign Affairs and National Defense Division, The Library of Congress, 1991, 8-9.

Fortunately, bilateral chemical weapons talks have fared better than the multilateral ones. The CW discussions between the Superpowers resumed after the November 1985 summit when President Reagan and General Secretary Gorbachev submitted a joint statement reaffirming their commitment to a Chemical Weapons Convention.[25] Successful progress was demonstrated in September 1989 in Jackson Hole, Wyoming. USSR Foreign Minister Eduard Shevardnadze and U.S. Secretary of State James Baker signed a memorandum of understanding that outlined two stages of a Superpower experiment in controlling chemical weapons. In the first stage, sides would exchange general data on chemical weapon capabilities and conduct visits to specified military and civilian facilities. The second stage would then progress to the exchange of detailed information and allow for on-site inspections to verify the accuracy of exchanged data.[26]

On 1 June 1990, the United States and Soviet Union signed a Chemical Weapons Agreement covering the production of chemical weapons and the destruction of current stockpiles. Both nations agreed for the need to continue verification procedure trials, including test challenge inspections of non-declared sites.[27] The CWA provided for destruction

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[25] United Nations, Disarmament Yearbook 1989, 238-39.

[26] Bowman, "Chemical Weapons: Negotiations and Destruction," 9-10.

[27] Ibid., 10-11.

technology and costs to be shared, but speculation now exists that the Soviet Union has requested financial assistance or U.S. participation in building Soviet destruction facilities.[28] Nevertheless, convergence of views on verification procedures by the United States and Soviet Union have been viewed as a significant impetus for the CWC negotiations.

However, many developing nations continue to fear restrictions on their civilian chemical industries as an undesired by-product of a CW ban. Others, including China, India, and Brazil, remain adamantly opposed to on-site inspections upon demand.[29] Efforts to move forward the Chemical Weapons Convention continue to be hampered by intransigent unilateral positions. "Glacial progress" are the words of one State Department officer used to describe CWC accomplishments by the Conference on Disarmament. He further elaborated:

> "That the Conference on Disarmament has been able to accomplish anything is a political miracle... Attempting to get such a politically contradictory group to agree on the calendar date is an accomplishment akin to successfully herding chickens."[30]

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[28] Ibid., 3.

[29] Kemp, "Verification the Key," 704.

[30] David T. Jones, "Eliminating Chemical Weapons: Less than Meets the Eye, The Washington Quarterly, (Spring 1989): 86.

It is widely held that an adequate verification system remains the key problem to concluding a CWC.[31] Perhaps it is time to remove the verification issues from the politically charged Conference on Disarmament. Proposals calling for the establishment of a permanent international verification regime are not new. However, reasons for revisiting the subject seem clear, based on the "glacial progress" demonstrated over the past two decades by failure to achieve a verifiable Chemical Weapons Convention.

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[31] United Nations, Disarmament Yearbook 1989, 244.

III. BACKGROUND OF THE UNITED NATIONS VERIFICATION AGENCY

The concept of UN participation in multilateral arms control treaties is firmly rooted in the experiences of the United Nations. Though only minor references to disarmament were included in its 1945 Charter, nearly every major UN General Assembly Resolution dealing with general and complete disarmament has cited the need for effective international control.

The United States currently opposes a role for the United Nations in the field of verification. Until the mid-1980s, the Soviet Union also held major objections to international control mechanisms. However, the Soviet Union now supports an international verification agency under the auspices of the United Nations. This chapter examines the evolution of the UN role in arms control verification and looks at changing superpower attitudes on that verification role. The basis for current U.S. opposition is reviewed and possible prerequisites for the United States to support the concept of a United Nations verification agency (UNVA) are presented. The chapter concludes with the potential benefits and drawbacks of a UN verification agency.

A. GENESIS OF THE UN VERIFICATION AGENCY CONCEPT

The Baruch plan was the first major arms control proposal made to the United Nations which included international verification provisions. Proposed by the United States in 1946, procedures were outlined for the control and eventual destruction of nuclear weapons. The plan called for the creation of an International Atomic Development Authority to control all atomic energy activities.[32]

The Baruch plan was bitterly opposed by the Soviet Union and regarded as an unwarranted infringement on national sovereignty. The Soviets argued that, on the pretext of establishing international control, the outcome would be nothing more than a form of legalized international espionage. The Soviet counterproposal was a commitment to nuclear disarmament ahead of any form of international control. The Baruch plan was never implemented and the pattern of East/West differences over verification and control systems continued for the next four decades.[33]

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[32] Trevor N. Dupuy and Gay M. Hammerman, eds., A Documentary History of Arms Control and Disarmament (Dunn Loring, Va.: T.N. Dupuy Associates, 1973), 301-08.

[33] Examples of reciprocal charges that the West favored "control without disarmament" and that the East favored "disarmament without control" are President Eisenhower's 1955 Open Skies Proposal and the 1961 bilateral Statement of Agreed Principles. For complete texts see Statement by President Eisenhower at the Geneva Conference of Heads of Government: Aerial Inspection and Exchange of Military Blueprints, July 21, 1955. In Dupuy, Documentary History of Arms Control, 380-81 and Report of the United States and the Soviet Union to the Sixteenth General Assembly on the Results of the Bilateral

However, long-held Soviet objections to international verification regimes took a momentous shift after Mikhail Gorbachev came to power. Gorbachev's article, "The Realities and Guarantees of a Secure World," declared Soviet support for a UN role in arms control verification. Submitted as an official UN document in September 1987, the article stated:

> It seems to us that the aim of strengthening trust and mutual understanding under the UN auspices, it is possible to establish a mechanism for wide-ranging international verification of compliance with agreements aimed at reducing international tension and limiting armaments, and for monitoring the military situation in regions of conflict. The mechanism would operate by using various verification forms and methods for collecting information and its prompt submission to the UN.[34]

One year later, at the Third UN Special Session on Disarmament, Soviet Foreign Minister Shevardnadze formally proposed the creation of an international monitoring and verification agency under the auspices of the United Nations.[35] Other proposals on verification of disarmament agreements, submitted by France, Canada, and the Netherlands,

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Talks: Agreed Statement of Principles, September 20, 1961. In Dupuy, Documentary History of Arms Control, 471.

[34] United Nations Document A/42/574 in UNIDIR, Verification: The Soviet Stance, 112.

[35] The Soviet proposal was included in a paper, "Establishment of an international verification mechanism under the auspices of the United Nations." That document, A/S-15/AC.1/15, was a combined effort of Bulgaria, Czechoslovakia, and the USSR. In United Nations, Disarmament Yearbook 1988, 71-72.

also focused on multilateral verification by a United Nations group of experts.[36]

Concurrent with verification efforts at the Third UN Special Session on Disarmament, the forty-third session of the UN General Assembly considered three draft resolutions on the item "Verification in all aspects." Largely due to the negotiation efforts of Sweden, the originator of two of the proposals, the three drafts were merged into one single text. That final draft resolution, entitled "Study on the role of the United Nations in the field of verification," was co-sponsored by 35 countries.

Sweden made clear that one of the reasons for its proposal was the fact that states had different capabilities in terms of national technical means of verification and international verification arrangements could help even out such differences. Based upon the central role played by the United Nations in the sphere of disarmament, Sweden believed that the United Nations should have a corresponding role in the field of verification.[37] Other sponsors noted that the United Nations could make significant contributions in the field of verification, particularly with respect to multilateral agreements.

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[36] Ibid., 71.

[37] Ibid., 365-66.

On 7 December 1988, the United States cast the single negative vote for Resolution 43/81 B, entitled "Study on the role of the United Nations in the field of verification." The final recorded vote was 150 to 1, with no abstentions.[38]

B. UNITED STATES OPPOSITION TO ROLE OF THE UN IN VERIFICATION

In explaining its negative vote, the United States expressed the view that verification arrangements:

> must be developed and agreed upon by the negotiating parties. It did not see how the Secretary-General could undertake an in-depth study on the role of the United Nations in verification in the abstract, in the absence of any parameters that specific agreements might provide for such a role in individual cases, and how, in the circumstances, the participants in the study could provide any specific recommendations for future action by the United Nations in that field.[39]

That statement was the formal U.S. position. It was far different from the U.S. position stated twenty-five years earlier in the Statement Agreed of Principles which supported an International Disarmament Organization within the framework of the United Nations.

In those twenty-five years, the United States had increasingly relied upon treaty-specific verification provisions as the most effective means of verifying treaty compliance. The United States now believed that verification

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[38] Ibid., 367-68.

[39] Ibid., 368.

was a matter for states directly concerned and was most effective when it was treaty specific. Further, that same rationale was embodied in principle 13 of the Disarmament Commission's draft principles. Outside organizations could be involved in verification agreements only at the request, and with explicit approval, of all participating parties.[40]

However, in casting the single negative vote against Resolution 43/81 B, the United States ignored growing awareness within the international community of the significant role that multilateral verification might play in multinational arms control agreements. By its negative vote, the United States refused to even investigate the political or financial realities of an expanded role for the United Nations in the field of verification.

More candid reasons for the U.S. position were expressed by Richard S. Williamson, the U.S. Alternate Representative to the third UN Special Session on Disarmament. His statement before Working Group II of the special session revealed deep-seated U.S. resistance to any expansion of UN activities in the field of disarmament. He stated:

> Over the years the United Nations has accumulated an elaborate - some would say excessive - structure of activities and mechanisms ostensibly designed to promote and encourage the arms control and disarmament process. Yet by its very nature, this structure has become unwieldy and, at times, detrimental to improving the climate for negotiations....

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[40] Ibid.

> Consistent with our views on the need to streamline the disarmament machinery, the United States does not perceive any need to create new, duplicative UN mechanisms in this field. We are aware of proposals from some member states for the establishment of new organs, such as a UN verification mechanism and an international outer space inspectorate. I wish to reiterate that my delegation will continue to oppose such proposals on both financial and, more importantly, substantive grounds.[41]

Although Mr. Williamson declared that U.S. resistance was based primarily on substantive and secondly on financial grounds, his statement occurred at a time when the United States was nearly $550 million in debt to the United Nations. Background events which led to that debt revealed broad-based U.S. displeasure with the United Nations. Conceivably, that dissatisfaction was exhibited when the United States was the single nation to oppose an investigation into the role of the United Nations in the field of verification.

One method by which the United States had previously sought to influence the United Nations was through the selective withholding of UN funds. The selective withholding of U.S. funds began in September 1983, when the Senate adopted a proposal to drastically cut the United States contribution to the United Nations. By far the largest contributor to the UN budget at 25 percent, the United States sought reforms to halt the seemingly unending growth in UN expenditures. The

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[41] Department of State, Bureau of Public Affairs, The United Nations and Disarmament, Current Policy 1077 (Washington, D.C.:GPO, 1988) by Richard S. Williamson, statement before Working Group II of the UN Special Session on Disarmament, New York City, 7 June, 1988, 2.

sponsor of the amendment, Senator Nancy Landon Kassebaum, Republican of Kansas, proposed cuts amounting to $500 million over four years, roughly half the United States contributions. The Senator explained that her amendment was:

> not motivated by pique at the United Nations over any one vote or situation in recent years... what it means is simply that the United Nations will have to look to its budget, just as we are struggling to look at our budget. It is as simple as that.[42]

Despite the budget argument for the selective withholding of UN funds, the Kassebaum amendment was proposed at a time of growing politicization within the United Nations. On 19 September 1983, only three days prior to the Kassebaum amendment, Ambassador Charles Lichenstein, frustrated deputy chief U.S. delegate to the United Nations, invited Soviet and other UN delegates to leave the United States if they were not happy with host country hospitality. In fact he said, "we will be at dockside bidding you a farewell as you set off into the sunset."[43] Following Mr. Lichenstein's remarks, Senator Steven D. Symms, Republican of Idaho, wrote to President Reagan saying he was:

> convinced that most Americans are tired of playing host to our enemies and critics who abuse our hospitality, using the United Nations as a platform for insults and

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[42] Congress, Senate, Proceedings and Debates, 98th. Cong., 1st. sess., Congressional Record (22 September 1983), vol. 129, no. 123, S 12732-33.

[43] Ibid., S12733.

propaganda and a headquarters for espionage, while we pick up the lion's share of the UN's cost.

I hope you will consider awarding Ambassador Lichenstein a Medal of Freedom.[44]

It can be argued that the Kassebaum amendment was passed more for its political message than its actual intent of UN reform. The United States, discontent with the rhetorical Eastern and third world voting blocs, pursued both political and fiscal strategies to bring about desired improvements to that organization. Accordingly, it is quite possible that initial U.S. resistance to a UNVA was based more on the political and financial climate which existed in the United Nations during the late 1980s, and less on declared "substantive grounds."

C. PREREQUISITES FOR UNVA TO BECOME SUPPORTABLE BY THE U.S.

The United States argument against a UN verification role is divided into two levels: one substantive and the other political. The argument that the UN machinery in the field of disarmament needs to be streamlined and made cost effective is substantive. Calls for the General Assembly to reduce the rhetorical and argumentative texts on disarmament, though arguably substantive, are generally a political consideration.

On the political side of the argument, much progress has been made by the United Nations in combating the factional

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[44] Ibid., S12734.

tension that has highlighted much of its 45-year history. Current historic political events in Eastern Europe and the Soviet Union have placed East-West relations on a new foundation. The revitalized concept of a modern interdependent world requires a fresh look at the ideal of internationalism and international organizations in general.

In recent years, the United Nations has demonstrated that it can achieve multilateral solutions to complex global issues and difficult political problems. However, the argument that because the United Nations is a more successful organization in 1991 than it was in the past does not automatically translate to the need for the United States to support a UN verification agency. Substantive issues must be examined to determine what benefits a UNVA might have over current verification methods. One substantive issue pertains to the increasingly important political side of arms control verification requirements.

As Henry Kissinger once stated, "the major weakness of United States diplomacy has been the insufficient attention given to the symbolic aspects of foreign policy."[45] By reversing its position against a UN verification agency, the United States would demonstrate the emerging importance of that international body and position itself as a proactive

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[45] Henry Kissinger, Nuclear Weapons and Foreign Policy, (Norton, 1957), 61. In Jacques S. Gansler, Affording Defense, (Cambridge: MIT Press, 1989), 46.

influence in the design and proper use of such an organization.

In addition to the political prestige gained by this policy reversal, an effective UN verification agency could offer other important advantages over current ad hoc methods of treaty verification. However, potential drawbacks to a permanent UN verification agency must also be considered.

D. POTENTIAL ADVANTAGES/BENEFITS OF A PERMANENT UNVA

1. Verification Costs

Compliance and verification expenditures are divided into two categories - one time costs and recurring costs. One time costs include: research and development, equipment procurement, initial planning and management, baseline inspections and elimination costs. These costs can be incurred over a ten year period, but are usually concentrated in the first three. Recurring costs include: short-notice and suspect-site quota inspections, elimination costs, equipment procurement and maintenance, and management and oversight. Recurring costs begin the first year of implementation and can run indefinitely.[46]

Compliance and on-site estimated costs for the bilateral Chemical Weapons Agreement range from $45 million to

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[46] Congress, Congressional Budget Office, U.S. Costs of Verification and Compliance Under Pending Arms Treaties (CBO Study J-932-38, September 1990), 38.

$220 million in one-time costs and from $15 million to $70 million in annual costs. Those figures for CWA verification are deceivingly low because weapon elimination costs are not included. The destruction of older unitary chemical weapons was mandated and separately funded by Congress beginning in the mid-1980s.[47] Total U.S. chemical weapon elimination costs, initially estimated at $3.7 billion, have recently been increased to $6.5 billion, payable over the next seven or eight years.[48]

While detailed verification provisions of a multilateral Chemical Weapons Convention remain to be agreed upon, some verification costs can be estimated from the CWA example. The Congressional Budget Office estimated that there are roughly three to five times as many chemical factories worldwide as there are in the United States and Soviet Union combined. Thus, costs of verifying a CWC might be three to five the cost of the bilateral CWA. That assumption is based on proportional numbers of inspectors, inspections, and similar equipment to verify treaty provisions.[49]

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[47] Ibid., 37-39.

[48] Bowman, "Chemical Weapons: Negotiations and Destruction," 3.

[49] Another approach used by the CBO, which results in a slightly higher estimate, is to use the CFE and START drafts as a basis for CWC estimates. Assuming inspections of only 1 to 10 percent of plants capable of producing chemical agents, inspection costs might run to hundreds of million dollars each year. Congressional Budget Office, U.S. Costs of Verification, 40-41.

Experts from the U.S. chemical industry have acknowledged that the technology probably exists to verify a chemical weapons ban. However, those same experts estimate that the agency's technical secretariat and lab support staff must maintain a 1:1 ratio of staff to inspectors to manage the vast amount of collected data. Annual operating expenses for such an international authority are estimated in the $200 million to $300 million range.[50]

In summary, the cost of chemical weapons verification, now limited to a CWA only, is very high. When added together with compliance and on-site inspection costs required for Strategic Arms Reduction Talks Treaty (START), Conventional Forces in Europe Treaty (CFE), Threshold Test Ban Treaty (TTBT), and Peaceful Nuclear Explosions Treaty (PNET), these verification costs become staggering. For the United States alone, one-time verification costs range from $645 million to $3.03 billion and from $190 million to $660 million in annual costs.[51] Multilateral CWC verification costs will increase those numbers even higher.

Clearly an in-place UN verification agency might help defray many of the start-up, technical, and administrative costs through reduced duplication of effort and, when

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[50] Kyle B. Olson, "The U.S. Chemical Industry Can Live With A Chemical Weapons Convention," Arms Control Today, (November 1989), 24.

[51] Congressional Budget Office, U.S. Costs of Verification, 41.

possible, the sharing of collected data between various treaties. Overhead costs of the agency could be shared by all UN members. Treaty-specific costs would be divided proportionately among parties as agreed upon during the treaty negotiation process.[52] Additionally, spiraling research and development costs, representing almost 10% of the total costs in monitoring treaty compliance,[53] enhance the need for sharing the burden of multilateral treaty verification costs.

2. Monitoring Treaty Compliance

Some skeptics have argued that a treaty banning chemical weapons defies any degree of verifiability.[54] Based on the sheer quantity of chemical substances which must be monitored, many which have legitimate alternate purposes, those critics may have a convincing case. The opposing argument emphasizes that the security gains from an admittedly imperfect treaty outweigh the consequences of unchecked chemical weapons proliferation. Neither argument is 100% conclusive.

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[52] A. Walter Dorn, "The Case for a United Nations Verification Agency," IEEE Technology and Society Magazine, 9 (December 1990/January 1991), 19-21.

[53] John D. Morrocco, "Verification Raises Cost, Technology Concerns," Aviation Week & Space Technology, (6 August 1990), 45.

[54] Kenneth Adelman, "Why Verification is More Difficult (and Less Important)," International Security, (Spring 1990): 143.

Recently, in a reversal of previous demands for anywhere, anytime, and no right of refusal chemical inspections, the United States moderated its position on the need for so-called challenge inspections. Under the old proposals, countries could visit any plants or laboratories under the pretext that they understood chemical weapons were being stored there. With the revised U.S. plan, inspectors could effectively be barred from specified plants and given only limited access to others. The turnabout by Washington was based on the need to protect sensitive military technologies from international inspectors.[55] The CWC negotiators must now decide how to incorporate these changes into the final draft and maintain support for the convention. Whatever the final decision, the verification regime which eventually monitors the CWC will be bound by those verification decisions.

Similar procedures would apply to a permanent UN verification agency that might be called upon to perform certain verification duties. Treaty-specific verification clauses would delineate that agency's involvement as specified by the negotiating parties. Each treaty would be overseen by its signatories with assigned verification duties carried out by the UNVA. Again, limits to those duties would be determined by the negotiating parties.

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[55] Paul Lewis, "U.S. Now Prefers Limited Inspection of Chemical Arms," The New York Times, 14 August 1991, p. A5.

Additionally, an international verification agency is not intended to replace the procedures currently used in many areas of bilateral arms control verification. Parties to a treaty will remain free to negotiate bilaterally or regionally, utilizing the UNVA only for verification provisions and treaties that they deem appropriate.

3. Speed in Treaty Implementation

An often overlooked advantage to a UN verification agency is the role that such an agency could play before a treaty is written. Concerns over verification issues could be addressed before and during treaty negotiations and agency experts might guide negotiators in the use of previously developed verification technology or in the drafting of specific provisions.[56] This "corporate knowledge" aspect would be most relevant to treaties that might not involve the superpowers.

Beyond the consultative assistance to negotiators, treaty ratification might become easier if member states would be assured that international experts had already provided their inputs and that such a verification agency was in place and ready to function as soon as a treaty was implemented.[57] The disadvantages of not having such an agency is aptly

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[56] Dorn, "The Case for a UN Verification Agency," 19.

[57] Ibid.

demonstrated by the difficult 20-year verification process of the CWC.

In a purely domestic approach, the United States has realized the benefits of an umbrella organization to study verification work and investigate requirements of pending arms control agreements. In 1990, the Verification Technology Working Group was established as a subcommittee to the Arms Control Policy Committee within the National Security Council. Members of the group include representatives of the State Department, Energy Department, Defense Department, ACDA, and the intelligence agencies.[58] These organizations work together to prepare the United States for the next generation of verification challenges. The framework of this interagency approach can be expanded to confront the increasingly international problem of how much verification can be accepted and how to best implement that verification.

4. Dispute Resolution

The final advantage to a UN verification agency comes in the area of dispute resolution, and it is important to note its position relative to the others. Dispute resolution is considered of little benefit because of a lack of an international enforcement mechanism. The intent of this proposed UN verification agency is not to create a judicial-

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[58] Breck W. Henderson, "Arms Control Pacts May Outpace Advances in Verification Technology," Aviation Week & Space Technology, (6 August 1990), 51.

like commission to rule on suspected arms control violations. By utilizing a UN agency to resolve compliance problems, the political importance of give-and-take negotiations would be emphasized. In order for satisfactory resolutions of compliance problems to occur, diplomacy must handle disputes once an arms control agreement enters into force.[59]

A UN verification agency, comprised of highly qualified experts in the field of disarmament and arms control, would provide the best forum for ensuring a continuing consultative process between parties.[60] The credibility of such a consultative commission might persuade, pressure or otherwise convince an errant treaty member that its best interests lie within the framework of the treaty and not in unilateral measures, including possible treaty break out. Additionally, this commission could help distinguish overtly political accusations from technical issues by establishing priorities for examining officially filed treaty violations. And once again, the "corporate knowledge" developed by the resolution branch of this multinational verification agency could be used to structure verification provisions of future arms limitation treaties.

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[59] Robert J. Einhorn, "Treaty Compliance," Foreign Policy, No. 45, (Winter 1981-82): 39.

[60] Allan S. Krass, Verification - How Much is Enough?, SIPRI, (Lexington: D.C. Heath and Company, 1985), 254.

E. POSSIBLE DRAWBACKS TO A UN VERIFICATION AGENCY

The United States government believes there are sufficient UN bodies to consider the broad range of existing arms control and disarmament agreements. To accord disarmament roles to other bodies would detract from the work of the Geneva Conference on Disarmament.[61] As Mr. Williamson cautioned the 1988 UN Special Session on Disarmament: "to contribute to a more constructive atmosphere for the conduct of arms control and disarmament negotiations, we must be realistic and avoid divisive proposals and overly ambitious concepts which are clearly not susceptible to consensus."[62] Obviously, more valid and tangible objections to a UN verification role exist and should be examined.

In the budget-conscious United Nations, almost any new project that involves large financial expenditures is met with resistance. Many questions regarding a UNVA have arisen, such as: Who will fund the agency? Who will participate in the agency and staff the inspectorate? Where will the verification labs and headquarters of the agency be located? None of these questions are easy, yet neither are they insurmountable. Once the political will to establish a UNVA has been attained, these funding issues can be addressed in earnest. However, it is important to remember that the

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[61] Department of State, The United Nations and Disarmament, 2-3.

[62] Ibid., 3.

sharing of collected verification data, personnel, and resources can be more cost-effective than current ad hoc methods of treaty verification.

A second possible objection to a UNVA involves the manner in which a body of sovereign states could effectively manage the collection, evaluation and use of sensitive verification information.[63] Many argue that a UN verification agency would prove inefficient and too bureaucratic for the task.[64] Again, it must be emphasized that a UN verification agency need not begin on a grand scale. Just as verification provisions between the superpowers have evolved and matured over time, the same can be expected of an international verification regime.

Multilateral treaty verification requires that treaty members begin to participate in the verification process to some extent.[65] That does not mean that advanced verification procedures, such as, no-notice on-site inspections, rights of overflight, in-country seismic monitoring and semi-permanent portal monitoring facilities will be incorporated into

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[63] James A. Schear, "Verifying Arms Agreements: Premises, Practices, and Future Problems," in The Verification of Arms Control Agreements, ed. Ian Bellany and Coit D. Blacker (London: Frank Cass and Company, 1983), 92.

[64] Pamela Pohling-Brown and Brigette Sauerwein, "Tools and Techniques of Verification," International Defense Review, 24 (May 1991): 408.

[65] Ivan Oerlich, "The Changing Rules of Arms control Verification: Confidence is Still Possible," International Security vol. 14, no.4, (Spring 1990): 181.

multilateral treaties overnight. A UNVA would likely begin by using less intrusive, cooperative verification measures. Those measures might include multilateral risk-reduction centers, the voluntary exchange of treaty-specified data, the use of unmanned "black boxes," or the tagging of military hardware.

Concern over spying is a third possible objection to a multilateral verification agency. Verification uncertainties will always be inherent in multilateral treaties which involve diverse military organizations and varied political doctrines. The United Nations is a time-tested organization, well experienced in handling both sensitive data and difficult issues of national sovereignty. The protection of classified military technologies and sensitive commercial or economic information must be included in the proper design and operation of any UN verification system.

F. SUMMARY

Today, the international political climate is markedly different from the period when the United States voted against examining a verification role for the United Nations. In his 1991 National Security Strategy of the United States, George Bush acknowledged that the United Nations is "beginning to act as it was designed, freed from superpower antagonisms that often frustrated consensus, less hobbled by the ritualistic

anti-Americanism that so weakened its credibility."[66] In the coming decade, the United Nations will likely play a more prominent role in handling complex global issues than any time in its past. Recognizing the emerging political importance of that organization, the United States should review its previous opposition to a UN role in multilateral verification.

However, verification of large multilateral treaties presents a unique challenge to arms control regimes. The improved political prestige of the United Nations does not necessarily guarantee a constructive UN role in the field of arms control verification. Current multilateral arms control proposals, including the elimination of chemical weapons, require that potential benefits of a permanent UN verification regime be fully explored. Though several advantages of a permanent UNVA have been presented, potential drawbacks will require special attention in the proper design of a permanent verification regime.

The complex nature of verifying the Chemical Weapons Convention is one reason to investigate past UN verification experiences. One often-praised UN verification agency, the International Atomic Energy Agency (IAEA), has accumulated over three decades of verification experience in a multilateral arms control regime. Similarities between the

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[66] George Bush, National Security Strategy of the United States, (Washington, D.C.: GPO, August 1991), 13.

requirements of IAEA safeguards and those of verifying a Chemical Weapons Convention further support the concept of a permanent UN verification regime.

IV. THE INTERNATIONAL ATOMIC ENERGY AGENCY ANALOGY

As an institution that has carried out the challenging verification and compliance provisions of the multilateral Non-Proliferation Treaty, it is natural to examine the International Atomic Energy Agency (IAEA) as a possible institutional model for a chemical weapons verification regime. Certain political, organizational, financial, and technical aspects of the IAEA might be applied to the establishment of a CWC verification regime. Additionally, some of the problems experienced by the IAEA may emerge in the Chemical Weapons Convention. These problems, including the general sense of dissatisfaction by some member states over disparity of verification provisions, can offer valuable lessons for the CWC.

However, critical differences between the IAEA and the CWC exist that limit the applicability of these lessons. Requirements to monitor nuclear materials and halt nuclear proliferation are distinct in many ways from those needed to verify a complete ban on chemical weapons. Among the most important of these differences are the immense size and diversity of the chemical industry. Verification and data exchange requirements under a comprehensive CWC agreement will subject many thousands of chemical plants to some form of

international safeguards. In contrast, the IAEA monitors less than 1,000 nuclear installations worldwide.[67]

This chapter briefly describes the background of the International Atomic Energy Agency's safeguards program and its purpose in controlling the manufacture of nuclear weapons. Next, differences between controlling chemical and nuclear weapons are presented. Those differences include the scope of the problem for verifying the CWC. The chapter concludes with CWC-applicable lessons from the IAEA experience, including potential problems areas.

A. BACKGROUND OF THE IAEA SAFEGUARDS PROGRAM

The International Atomic Energy Agency was created in 1957. First proposed by President Eisenhower in his December 1953 "Atoms for Peace" address, the IAEA was established to promote the peaceful uses of atomic energy by the United States and other countries with atomic capabilities.[68] The IAEA was designed as an autonomous body. Required to report annually to the United Nations General Assembly, it is neither

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[67] James F. Keeley, International Atomic Energy Agency Safeguards: Observations on Lessons for Verifying A Chemical Weapons Convention, (Ottawa, Canada: The Arms Control and Disarmament Division, Department of External Affairs, 1988), 14.

[68] Dupuy, Documentary History of Arms Control, 358,397.

a specialized agency nor a branch of the United Nations.[69] As expressed in Article II of its Statute, specific objectives of the IAEA are to:

> seek to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world. It shall ensure, so far as it is able, that assistance provided by it or at its request or under its supervision or control is not used in such a way as to further any military purpose.[70]

However, it was not until ten years after its creation that the IAEA was called upon to perform specific verification roles in a multilateral treaty.

The Non-Proliferation Treaty (NPT) of 1968 directed the IAEA to carry out exclusive NPT verification duties under the Statute of the IAEA and the Agency's Safeguards Programme. In part, the objectives of the IAEA safeguards are: "the timely detection of diversion of significant quantities of nuclear material from peaceful nuclear activities to the manufacture of nuclear weapons or of other nuclear explosive devices or purposes unknown, and deterrence of such diversion by the risk of early detection."[71]

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[69] Ben Sanders, "Some Practical Aspects of Arms Control Verification," in Multilateral Aspects of the Disarmament Debate, (United Nations, Department for Disarmament Affairs, 1989), 149.

[70] Ibid., 397.

[71] The Structure and Content of Agreements between the Agency and States Required in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons, INFCIRC/153, IAEA, Vienna, May 1971, para.28 in Krass, Verification: How Much is

Unfortunately, three limitations on safeguards can be derived from that statement of purpose. First, safeguards apply to "peaceful nuclear activities" and therefore do not include military nuclear facilities of the declared nuclear weapon states. Second, safeguards are intended to deter the diversion of nuclear materials, not prevent them.[72] Third, the IAEA and its safeguard system lack an enforcement mechanism to modify the behavior of member states should the need arise. Lacking such enforcement powers, safeguards can only serve to deter the diversion of nuclear materials by threatening to expose improper activities.

Despite those admitted drawbacks, the IAEA verification system represents substantial advances in co-operative arms control agreements. Notable features include the ability of the IAEA to function as a verification agency dedicated to standardization and coordination of an international safeguards system. This multinational system, designed to represent both nuclear suppliers and recipients, has proved more politically acceptable than multiple bilateral systems which often result in conflicting approaches to the assigned verification task.[73]

Enough?, 89-90.

[72] Krass, Verification: How Much is Enough?, 90.

[73] Keeley, International Atomic Energy Agency Safeguards, 1-2.

A second attribute of the IAEA is its success in the politically-sensitive area of on-site inspection. Through development and maturation of its safeguards system, the Agency has solved many delicate industrial, technical, and economic issues associated with foreign inspectors on national territory. That safeguards system, structured not to infringe unacceptably on national sovereignty and on authorized uses of nuclear facilities and materials, is regarded as a unique success in multilateral arms control verification.[74]

B. CHEMICAL INDUSTRY VERSUS NUCLEAR INDUSTRY: SCOPE OF THE PROBLEM

Among the most critical differences between verifying a Chemical Weapons Convention and verifying the Non-Proliferation Treaty are the immense size and diversity of the chemical industry. Coupled with Third World claims that a CWC might hamper their emerging chemical industries, disparity of application between states remains a difficult verification issue. Compounding these concerns are the holdout states which choose to remain outside the treaty regime and the relative ease of clandestine CW production.

1. Diversity of the Chemical Industry

IAEA safeguards are considered a great deal more straightforward than those which will be required to perform

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[74] Ibid.

chemical weapons verification. IAEA safeguards are written for specific production facilities and directed at one particular end-use product - nuclear explosives. They are dependent upon narrowly-defined end-use controls and accounting procedures.

The effectiveness of supplier controls in the chemical industry is difficult to assess.[75] That complexity is based upon the variety of chemical agents and precursors that must be controlled and the varying degrees that chemical plants must be monitored. To address those chemical industry control problems, there has been growing accord that the verification regime required to monitor the CWC must be supplemented by some form of ad hoc on-site inspections.[76]

Verification trial experiments, held by Australia in 1986, concluded that material accounting alone would not guarantee illicit production of designated chemicals.[77] Preliminary estimates of the number of chemical facilities that would have to be inspected in order to verify non-production range from 50,000 to 100,000.[78] Though technically feasible, the magnitude of that inspection task

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[75] Ibid., 18.

[76] Verification Research Unit of External Affairs and International Trade Canada, The Chemical Weapons Convention and the International Inspectorate: A Quantitative Study, August 1990, 51.

[77] Ibid.

[78] Ibid., 53.

will require a much larger international inspectorate than that required by the nuclear Non-Proliferation Treaty. Some studies claim that, even if these inspections are carried out in a minimal way, this effort would require a major allocation of resources not necessarily related to the degree of risk posed to the Convention.[79]

The right of challenge inspections, described by President Bush as the ability of a verification body to go "anywhere, anytime, and no right of refusal,"[80] is one method to target suspect states and limit verification costs. However, that politically charged issue, the need for challenge inspections, has little precedent in multinational arms control verification. While certain aspects of the IAEA experience in international inspections are germane to the CWC, overcoming political barriers to challenge inspections is an area where the IAEA can provide little guidance.

2. Disparity of Application

A general sense of dissatisfaction with the implementation of Articles IV and VI of the NPT has been voiced by many Third World nations. Article IV ensures "the use of nuclear energy for peaceful purposes without discrimination" and Article VI states that parties will pursue

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[79] Ibid.

[80] Lewis, "U.S. Now Prefers Limited Inspection," A1.

measures to cease "the nuclear arms at an early date and to nuclear disarmament."[81]

Claims that technical assistance is discriminatory, that supplier group controls infringe upon peaceful nuclear purposes, and concern over lack of progress in superpower arms control, have been stated by some developing nations. Additionally, the disparity of application by requiring non-nuclear weapon states to submit to safeguards while nuclear weapon states were not required to do so, has proved to be another point of Third World criticism. Such charges of inequity lesson the confidence in the non-proliferation regime and may lead to negative effects on its component bodies, including the IAEA safeguards system.[82]

Disparity of application in a ban on chemical weapons is a major concern for many of these same developing nations. Widespread apprehension that a CWC might place Third World states at a commercial or industrial disadvantage in developing their chemical industries is firmly grounded in their experience with the IAEA. Further, any efforts to deny chemical weapons to some nations while allowing for retention by others is also viewed as hypocritical by many Third World

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[81] Non-Proliferation Treaty, Articles IV and VI, in U.S. ACDA, Arms Control and Disarmament Agreements, 100.

[82] Lawrence Scheinman, The Nonproliferation Role of the International Atomic Energy Agency: A Critical Assessment, (Washington, D.C.: Resources for the Future, 1985), 66-67.

states.[83] The CWC verification regime must avoid any speculation that the interests of one state, or group of states, is provided undue advantage through treaty provisions. Unlike the IAEA Statutes, the CWC verification regime must refrain from placing different requirements or levels of control on party states. Industry cooperation and the consensus approach to problem solving will assist in this area.

3. Non-Member States and Potential Proliferators

Despite the existence of a suitable control system for either nuclear of chemical regimes, there will always be hard-core holdouts, states that elect to remain outside the Treaty system. Whether driven by regional or global ambitions or conventional security fears, certain nations remain motivated to acquire weapons of mass destruction. The IAEA is not directly involved with these fundamental issues of power and security.

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[83] In May, 1991, President Bush reversed his position to retain 2% of U.S. CW stockpiles until all CW-capable nations had signed the CWC. Previously, U.S. policymakers viewed the stockpile as a deterrent to CW use against the United States and as an incentive for other nations to sign the CWC. Many third world nations believed that U.S. position sought to deny other nations a CW capability while the U.S. retained chemical weapons. The United States has now pledged to destroy its entire chemical weapons stockpile within 10 years of the CWC coming into force. In Bowman, "Chemical Weapons: Negotiations and Destruction," 7.

Currently, there are at least 14 nuclear facilities in five nations that are not subject to safeguards inspections.[84] Lacking enforcement provisions, neither the IAEA or its safeguards system can do anything about these non-party states or their future decisions to acquire nuclear weapons. However, one professor of government who has written extensively on the IAEA concluded:

> While the success or failure of U.S. and world nonproliferation policy does not stand or fall on the decision to acquire nuclear weapons by one or two nonsignatories to the NPT, the strength of the no-weapons pledge increases each time a new state chooses to make it. Each additional nonproliferation pledge reinforces others and complicates decisions of the remaining nonparticipants to go against the grain of overwhelming international ethic.[85]

However, non-member states continue to be a source of tension and concern for the NPT. Also, states that previously followed the treaty but have become suspect because of their actions further complicate the treaty regime.

Despite incomplete NPT membership and suspect actions by some members, the IAEA safeguards system is useful in complicating the plans of potential proliferators. Safeguards create added risks of detection and added trouble and expense

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[84] Krass, Verification: How Much is Enough?, 231.

[85] Scheinman, The Nonproliferation Role of the IAEA, 3.

for states attempting to circumvent or violate established procedures.[86]

Whatever the control system in place, not all possible routes of acquisition can be monitored. Clandestine production and stockpiling are not monitored by the IAEA and will be difficult to monitor under proposed verification provisions of the CWC. International Atomic Energy Agency inspectors do not have legal power to issue writs for release of information or subpoena individuals for statements of their actions. The transfer of authority to the IAEA is restricted in a way to leave the legal sovereignty of the State unaffected by the Agency's jurisdiction.[87]

Similar to the experience of the NPT, some nations may elect not to join a Chemical Weapons Convention. Additionally, not all routes to chemical weapon acquisition can be covered in a CWC. Lessons from the IAEA's experience with non-members (for example, China and North Korea), and potential proliferators (Iraq), will show that the decision to acquire weapons of mass destruction is largely a political one and must be dealt with separately from verification provisions.

Closing political loopholes in a Chemical Weapons Convention will require actions supplemental to basic CWC

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[86] Keeley, International Atomic Energy Safeguards, 17.

[87] Bellany, Verification of Arms Control Agreements, 68.

treaty provisions. These procedures might include unilateral supplier restraints, "trigger lists" of controlled items and multinational export control groups - tactics used to supplement the IAEA safeguards system in the nuclear control regime.

C. LESSONS FROM THE IAEA EXPERIENCE

As an arms control verification system applied to industrial processes, the International Atomic Energy Agency holds several lessons for the verification of a ban on chemical weapons. These lessons include the manner in which the IAEA approached such diverse issues as national sovereignty, development of a multi-tiered control system to halt nuclear proliferation and how the IAEA functioned as a technical organization, void of many political issues which have plagued other international bodies.

1. Issues of National Sovereignty

The verification role of the IAEA, carried out under its safeguards program, serves as the premier example of an international organization involved in multilateral verification. In the case of the IAEA, verification by an international organization has proved more acceptable as an intrusion on national sovereignty than if conducted on a one-to-one or bilateral basis. By electing to accept IAEA safeguards, states agreed that an independent, standardized system of verification was preferable to operating under two

or more conflicting systems.[88] Thus, acceptable safeguards were derived from a balance of adversarial and cooperative approaches to the nuclear verification task.

One cooperative approach, directly related to issues of national sovereignty, is the IAEA use of non-intrusive instrument monitoring systems. From the political-institutional aspect, passive and remote technologies have proved more acceptable than costly on-site inspections. Photography has given way to closed-circuit television and containment seals have continually improved through the use of fibre-optics, ultrasonics, and tamper-proof electronics.[89] The IAEA's remote continuous verification (RECOVER) system was developed to link electronic and fibre-optic probes to on-site computers, which then transmit data by satellite or telephone line directly to IAEA headquarters in Vienna.[90]

Some political sensitivity has delayed progress in the area of remote verification.[91] Nonetheless, extensive CWC verification provisions dictate that chemical verification requirements be conducted at a cost commensurate with the threat of non-compliance. Non-intrusive IAEA verification

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[88] Keeley, International Atomic Energy Agency Safeguards, 21.

[89] Bellany, The Verification of Arms Agreements, 71-72.

[90] Karl Pieragostini, "Arms Control Verification: Cooperating to Reduce Uncertainty," The Journal of Conflict Resolution, (September 1986): 441.

[91] Ibid.

methods, including the RECOVER system, containment and tagging systems, and tamper-proof electronics, can be amended to perform CWC verification duties.

Additionally, as an international organization representing both suppliers and recipients, the IAEA has proved to be neutral in its verification role. Safeguarded states have considered their interests better protected from within the organization than if they had chosen not to participate.[92] States which joined the NPT and accepted IAEA safeguards acquired some degree of influence in the Non-Proliferation Treaty regime.

That same preference - to work within an organization to effect desired change - has been aptly demonstrated for the CWC. In January 1989, 149 states attended the UN-sponsored Paris Conference on the Prohibition of Chemical Weapons. Wishing to build upon that Conference, in September 1989, Australia convened a Government-Industry Conference Against Chemical Weapons. Representatives from 66 countries and non-governmental organizations attended that Canberra Conference.[93] The number of potential member states and competing issues of national sovereignty dictate that CWC

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[92] Keeley, International Atomic Energy Agency Safeguards, 21.

[93] United Nations, United Nations Disarmament Yearbook 1989, 243-46.

verification provisions be conducted by an international organization.

2. Multi-tiered Arrangement Required

Successful verification of the NPT has been accomplished using a multi-tiered arrangement. The Treaty contains the basic layer of obligations: it obligates non-nuclear weapon states to conclude agreements with the IAEA and makes general mention of safeguards to be applied. These standard safeguards form the second layer of obligations. Individual states then negotiate various technical and administrative subsidiary arrangements pertaining to the safeguards operation of that state. Beyond that largely logistical third level is the fourth tier of the arrangement: the facility attachment. Concluded for each facility under safeguards, the exact technical nature and specific procedures to be applied to that installation are determined.[94]

A multi-tiered control system for the CWC was introduced to the Conference on Disarmament by Sweden in August 1985. Included in that document, CD/632, were proposals for arranging chemical agents into three groups. Each group would include four regimes: declarations,

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[94] Sanders, "Some Practical Aspects of Verification," 150.

elimination, production and verification.[95] To date, nearly all serious verification suggestions for a CWC have included some form of detailed, multi-tiered control system. The experience and success of the IAEA in the area of multi-level verification should be useful in negotiating a standardized system for CWC verification.

3. Avoidance of Politicization Important

The final similarity between nuclear and chemical control regimes is the degree to which those organizations must remain free of political conflict. Though no international agency can operate entirely without political debate or controversy, the IAEA is often referred to as a successful technical rather than a political institution.[96]

The problem of politicization, the injection of unrelated political issues and controversies into that agency's charter[97], provoked the United States to suspend temporarily its participation in the IAEA from September 1982 to the spring of 1983. The value of the IAEA and the worth of the non-proliferation regime proved to be more important than

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[95] A. Lau, "A Comprehensive Approach for Elaborating Regimes for Chemicals in a Future Chemical Weapons Convention," in The Chemical Industry and the Projected Chemical Weapons Convention, Vol.II, by the Stockholm International Peace Research Institute (Oxford: Oxford University Press, 1988), 116-19.

[96] Scheinman, The Non-Proliferation Role of the IAEA, 34-35.

[97] Ibid., 34.

combating other IAEA members over the condemnation of Israel.[98]

Keeping extraneous political issues from returning to the IAEA, or preventing them from ever developing in a chemical weapons verification body, is critical to the technical success of either organization. The design of the IAEA as an autonomous agency within the United Nations system helps to insulate that body from political tensions that detract from its technical verification duties. Similarly, a chemical weapons verification agency must retain that same independent arrangement, affiliated with - but not subordinate to - the United Nations.

D. POTENTIAL PROBLEM AREAS

While the IAEA may hold many lessons for the CWC, there are important differences that limit the applicability of these lessons. Foremost among these potential problem areas is the difficulty in controlling chemical weapons technology. Additionally, the CWC includes disarmament provisions, an area

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[98] On June 7, 1981, Israel attacked the Iraqi nuclear research reactor at Osirak. Although the reactor was under IAEA safeguards, the Iraq government had previously announced that it would refuse inspection of its nuclear facilities until the war with Iran was ended. That Israeli attack nearly disrupted the delicate balance between the integrity of IAEA safeguards and the NPT. More importantly, however, it demonstrated the need for an international regime to resolve contentious verification issues if multilateral treaties are to succeed. In Richard S. Williamson, "The United Nations: Some Parts Work," Orbis, (Spring 1988): 193.

untouched by the Statutes of the IAEA. Another difference centers around the issue of latent proliferation, a major concern for the CWC not addressed by the IAEA. And finally, any chemical safeguards system modeled directly after IAEA methods will be a costly undertaking.

1. Control of Chemical Weapons Technology Difficult

Extension of the safeguards system to the Chemical Weapons Convention presents one major technological difference. Unlike the clear delineation of nuclear weapons states and non-nuclear weapon states in the NPT, there are no centralized suppliers for chemical weapons technology. The technological/industrial base and raw materials to produce chemical weapons exists in a great majority of nations.[99]

At the time the IAEA came into existence, nuclear reactors were operating or under construction in five countries.[100] The United States and Soviet Union were able to negotiate a Non-Proliferation Treaty and enforce a system of safeguards under the IAEA because they had control of a technology that other countries wanted and were willing to make political sacrifices to obtain.[101] In return for guarantees that nuclear technology would not be misused, the

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[99] Krass, Verification: How Much is Enough?, 233.

[100] U.S. ACDA, Arms Control and Disarmament Agreements, 89.

[101] Krass, Verification: How Much is Enough?, 232.

controllers of nuclear technology agreed that all parties to the Treaty would "have the right to participate in the fullest possible exchange of equipment, materials,and scientific and technological information for the peaceful uses of nuclear energy".[102] Essentially, states which signed the NPT yielded on matters of national sovereignty, in the form of the safeguards system, in order to gain nuclear technology.

Few nations will be enticed to sign a CWC or agree to a chemical safeguards program by the mere promise of technical assistance to their chemical industries. Instead, the role of industry must be to actively participate in the design of the CWC verification system. By its direct involvement in the negotiation process, the chemical industry can cooperate in the efforts to control the spread of chemical weapons while monitoring industry concerns. These concerns include: the complexity of the control efforts, potential direct and indirect costs to industry, protection of confidential information, and protection of legitimate dual-use chemicals.[103]

2. CWC Includes Non-Proliferation and Disarmament

The current draft of the Chemical Weapons Convention includes removal of current CW stockpiles, destruction of CW

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[102] Non-Proliferation Treaty, Article IV, para.2 in U.S. ACDA, Arms Control and Disarmament Agreements, 100.

[103] Olson, "Industry Can Live With a CWC," 21.

production facilities, and end-use control of specified chemical agents. Thus, when finalized, the CWC will be both a disarmament and a non-proliferation agreement. While the Non-Proliferation Treaty called for "cessation of the nuclear arms race at an early date and to nuclear disarmament, and to a treaty on general and complete disarmament under strict and effective control"[104], no provisions for nuclear disarmament were given to the IAEA. Instead, that agency was designed to control nuclear proliferation through its verification functions, namely its safeguards system.

Many unique problems can arise for any organization given dual objectives. For the IAEA, those dual objectives involve technical assistance and non-proliferation duties. Some officials have argued that competition between those competing functions has blurred the objectives and complicated the structure and functioning of the Agency.[105]

To avoid similar charges of blurred objectives, a CWC verification regime must remain structured around a single, well-defined purpose. Other functions, including technical assistance, should be assigned only if they are secondary and

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[104] Non-Proliferation Treaty, Article VI, in U.S. ACDA, Arms Control and Disarmament Agreements, 100.

[105] Keeley, International Atomic Energy Agency Safeguards, 52. The same point is argued in Lawrence Scheinman, The International Atomic Energy Agency and World Nuclear Order, (Washington, D.C.: Resources for the Future, 1987).

clearly supportive of the primary function - verification of a complete ban on chemical weapons.[106]

However, while detailed specifications for verifying a CWC are clearly critical for initial implementation, such rigid provisions may prevent that verification system from responding to changing problems, techniques or projected applications.[107] To meet these future challenges, the CWC verification system must be structured to respond to emergent industry concerns and allow for growth in its technical verification role. The consensus approach to problem solving utilized by other UN organizations can best meet these undetermined technical, financial, and political verification concerns.

3. Non-Discriminatory Control Ineffective for CWC

In order to be effective and politically acceptable in its safeguards program, the IAEA has relied upon a non-discriminatory system of control. The allocation of safeguards resources is made according to technical/industrial criteria. Therefore, safeguards efforts are directed to states with significant civilian nuclear activities and not necessarily targeted at states with strong motivations to

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[106] Keeley, International Atomic Energy Agency Safeguards, 52.

[107] Ibid.

acquire nuclear weapons.[108] Additionally, no effort is made to single out states that might create the most undesirable consequences should they acquire nuclear weapons. Any attempt to base inspection efforts on motivation or consequences would probably be politically unworkable[109] since IAEA verification procedures are firmly established in non-discriminatory methods of control.

The Chemical Weapons Convention faces an even greater verification dilemma regarding non-discriminatory inspection procedures. Based upon the number of chemicals and plant sites to be monitored, a safeguards system based on the IAEA model would prove far too costly. Acceptance, to some degree, of compulsory challenge inspections in the CWC was expected to resolve the issue of targeting suspect states. However, recent proposals by the United States to limit challenge inspections will bring this allocation of resources problem back to the forefront.

Linked to the political issue of non-discriminatory control is the risk of latent proliferation. By preserving access to the benefits of peaceful nuclear technology, the IAEA intentionally has not addressed the problem of latent proliferation - the spread of the technological capacity to

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[108] Ibid., 11.

[109] Ibid.

make nuclear explosives.[110] A latent proliferation approach to controlling chemical weapons may be very difficult because of the relatively simple process required to produce these weapons. The sheer number of chemical plants and widespread availability of potential suppliers and materials make latent proliferation a major concern for the CWC.

Conclusion of a treaty to ban chemical weapons depends greatly on the government-industry approach to latent proliferation. Thus far, government-industry cooperation in pursuing a CWC has been encouraging. At the Government-Industry Conference Against Chemical Weapons, hosted by Australia in September 1989, some 400 delegates from 60 nations met to discuss chemical weapons policies. According to one conference official:

> the U.S. chemical manufacturing industry, represented by the Chemical Manufacturing Association (CMA) has been aggressive in setting the chemical weapons arms control agenda. In some senses, the CMA has been way ahead of the United States.[111]

Although the problems of supplier controls are magnified for chemical weapons, some specific control efforts of the NPT should be adapted for possible chemical industry use. These control lessons include: methods of development of the Nuclear Suppliers Group and its successful "trigger list"

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[110] Ibid., 6-9.

[111] Olson, "Industry Can Live With a CWC," 25.

of nuclear export control items; the manner in which the IAEA protects proprietary information and does not penalize developing countries or their nuclear industries; and the extensive use of industry when determining verification methods and controls.

4. Spiraling Costs of Safeguards

To perform the verification duties assigned by the NPT, considerable emphasis has been placed upon the safeguards system of the IAEA. That emphasis is best demonstrated by the growth of the Safeguards Division staff and budget. In 1967, total division staff was 24 members. That staff performed 29 inspections, with total expenditures amounting to $400,000 - 4% of the total IAEA budget. The safeguards operation in 1986 involved 455 members who performed 2050 inspections. That year, the Safeguards Division budget was nearly $40 million and accounted for over 35% of the total IAEA budget.[112]

To meet the demands of improved nuclear technology - extending the safeguards system to cover a ban on plutonium or enriched uranium - substantive changes would have to be made to the present system. Though feasible, the development, elaboration and codification of these technical measures, the recruitment and training of additional staff, and the re-

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[112] Keeley, International Atomic Energy Agency Safeguards, 14.

negotiation of every safeguard agreement concluded since 1970, make this a tedious and costly undertaking.[113]

An extension of the safeguards system to the CWC raises similar financial concerns. With initial estimates for annual CWC verification costs ranging from $15 million to $300 million (see Chapter III above), budget increases on the magnitude of the IAEA would make a CWC verification regime far too costly. Financing the CWC verification regime remains an unresolved and highly contentious issue.

E. SUMMARY

The International Atomic Energy Agency has been praised as an international organization widely accepted in the field of peaceful nuclear technology. Whereas the experience of the IAEA is specifically structured for the monitoring of nuclear materials, many of its lessons can be applied to the establishment of a chemical weapons verification regime.

In its 30-year history, the IAEA has successfully faced many difficult political and technical verification issues. These successes include the manner in which the IAEA resolved quarrelsome issues of national sovereignty, avoided politicization within its organization and simultaneously operated on four verification levels to control nuclear proliferation.

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[113] Krass, Verification: How Much is Enough?, 231-32.

Obviously, the CWC will present many unique verification challenges. The requirement to monitor a wide variety of substances, many with dual uses, presents a difficult test for the chemical industry and adds to the verification dilemma. Challenge inspections over allegations of CW use or clandestine production are problems now facing the CWC verification regime for which there is little international precedent. The problems of latent proliferation and non-discriminatory control, unresolved by the IAEA, are critical issues still confronting the Chemical Weapons Convention.

Thus, the use of the International Atomic Energy Agency as a model for the chemical weapons verification regime should be approached carefully. Organizational characteristics, political and technical innovations, and finances of the IAEA cannot be transferred mechanically to a Chemical Weapons Convention.[114] However, the success of the IAEA as an international organization should reveal that, despite some setbacks, the benefits of that organization far outweigh the consequences should it cease to exist. Where applicable, the chemical weapons verification regime should draw upon the vast verification experiences of the IAEA and its successful safeguards program.

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[114] Keeley, International Atomic Energy Agency Safeguards, 2.

V. UN ROLE IN VERIFICATION OF IRAQI CW CAPABILITIES

On 2 April 1991, the United Nations Security Council drafted Resolution 687 which declared provisions for a cease-fire in the Persian Gulf war. In part, that resolution mandated the formation of a UN Special Commission to inspect, destroy, remove or render harmless Iraq's chemical and biological weapons as well as ballistic missiles and nuclear-weapons-grade material.[115]

Although the work of the commission remains unfinished, comparable lessons from the verification and destruction of Iraq's chemical weapons might be applied to the larger task of verifying a Chemical Weapons Convention.

However, the chemical disarmament of Iraq is a unique arms control effort. Under the provisions of Resolution 687, sweeping latitude has been provided to the UN Special Commission to allow it to carry out its duties. Moreover, the commission is receiving crucial intelligence data from the United States and enjoys an allied guarantee of protection against Iraqi interference.

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[115] United Nations, Security Council, "Excerpts From Draft U.N. Council Resolution on the Cease-Fire in the Gulf." In The New York Times, 3 April 1991, p. A7.

Nonetheless, by promoting the establishment of the UN Special Commission in Iraq,[116] the United States acknowledged that a limited verification role does exist for the United Nations. This chapter examines the formation of that UN Special Commission as a possible model for a permanent UN verification regime. The ability of the commission to obtain qualified inspectors, equipment and funding, and to design a suitable plan of action within established timeframes is investigated. Similarities and dissimilarities between the verification of Iraqi chemical disarmament and requirements to verify a Chemical Weapons Convention are then presented. Finally, the performance of the commission is evaluated to determine if this limited UN verification role is reason for the United States to revisit its opposition to a permanent UN verification regime.

A. FORMATION OF THE UNITED NATIONS SPECIAL COMMISSION

Resolution 687 has been characterized as the most complex and ambitious effort ever attempted by the United Nations to settle a war and punish an aggressor.[117] The plan mandated

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[116] Twelve of the Security Council's 15 members voted in support of the measure. Cuba was the only negative vote. Yemen and Ecuador abstained. In Paul Lewis, "U.N. Votes Stern Conditions for Formally Ending War; Iraqi Response Uncertain," The New York Times, 4 April 1991, p.A10.

[117] Paul Lewis, "UN Security Council Drafts Plan To Scrap Most Deadly Iraqi Arms," The New York Times, 27 March 1991, p. A1.

the destruction of Iraq's chemical, biological and nuclear weapons, banned all military sales to its armed forces indefinitely, and ordered Iraq to pay for damages resulting from the 1990 annexation of Kuwait. It required Iraq to declare the locations, amounts and types of all dangerous weapons and related subsystems within 15 days of resolution adoption. Within 45 days of the resolutions's adoption, the Secretary General was directed to form a special commission to carry out the on-site inspection and eventual destruction of these weapons. Within 120 days of passage, the Secretary General, in consultation with the Special Commission, was charged to develop a plan for future monitoring and verification of Iraq's compliance. To help determine Iraq's nuclear capabilities and compliance, the director general of the International Atomic Energy Agency was requested to assist the Special Commission.[118]

UN disarmament specialist Derek Boothby stated that the inventory and destruction of Iraq's chemical weapons is "the most difficult"[119] aspect of the Special Commission's assignment. Chemical weapons "are difficult to handle, there

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[118] United Nations, "Excerpts form Draft UN Resolution," p. A7.

[119] Jonathan C. Randal, "UN Experts Set to Inspect Iraq's A-Sites: Visit is First Step in Arms Destruction," The Washington Post, 16 May 1991.

are more of them and they are extremely difficult to destroy,"[120] Boothby said.

On 18 April 1991, Iraq sent an inventory of all its weapons of mass destruction to the United Nations. Regarding chemical weapons and capabilities, Iraq declared 11,000 chemical munitions, including 6,920 120mm rockets, 2,530 nerve agent missile warheads, 200 nerve agent bombs, and 725 tons of nerve agent and 280 tons of mustard gas in bulk storage.[121] At least 2,700 of those weapons were declared buried under the debris from allied attacks on chemical weapons storehouses.[122] However, Iraq refused to disclose the location of 48 pounds of enriched uranium unless the IAEA guaranteed that it would not be destroyed.[123]

Although Iraq partially complied with Resolution 687 by declaring the size and location of its chemical arsenal, Deputy Ambassador to the United Nations Alexander Watson charged that Iraqi officials have been relocating CW stockpiles to avoid their detection. The Iraqi government denied those charges.[124] Nevertheless, Chairman of the UN

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[120] Ibid.

[121] Bowman, "Chemical Weapons Proliferation," 2.

[122] Elaine Sciolino, "Defanging Iraq: The Dauntingly Expensive Task of Imposing Arms Control," The New York Times, 28 April 1991.

[123] R. Jeffrey Smith, "Iraq Withholding Location of Nuclear Material," The Washington Post, 1 May 1991.

[124] Bowman, "Chemical Weapons Proliferation," 2.

Special Commission Rolf Ekeus admitted that "It is a bigger and bigger problem the more you look into it."[125] Robert L. Galluci, the commission's vice chairman, agreed that the chemical destruction effort is a "significant technical and political challenge."[126] Both officials acknowledge that major hurdles exist in the speedy destruction of Iraq's chemical arsenal. Those obstacles include an immediate lack of equipment, funds and personnel. Further, they believe "that the technical, political and environmental problems could easily delay completion of their work for a year or more."[127] Janne E. Nolan, a fellow at the Brookings Institution in Washington, elaborated on the ad hoc nature of the UN's extraordinarily ambitious task of verifying Iraqi disarmament:

> When the United States and Soviet Union decide to eliminate weapons, it involves years of planning and every single detail and legal nicety is spelled out in thick briefing books. This time, we're just winging it.[128]

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[125] R. Jeffrey Smith,"Destroying Iraq's Chemical Arsenal Expected to Be Lengthy Task for U.N.," The Washington Post, 1 May 1991.

[126] Ibid.

[127] Ibid.

[128] Sciolino, "Defanging Iraq," 28 April 1991.

B. SIMILARITIES BETWEEN IRAQI CW DISARMAMENT AND THE CWC

Skeptics may argue that there are limited parallels between Iraq's post-war disarmament and those of other arms control regimes. Resolution 687 was imposed by the United Nations on a country that had just suffered a devastating military defeat. Its provisions are markedly different from other arms control regimes where member nations voluntarily accept certain restrictions and agree to abide by established rules of inspection.

Nevertheless, some similarities do exist between Iraqi chemical disarmament and verification provisions of the Chemical Weapons Convention. These similarities include: the sheer magnitude of the chemical inspection effort, the demonstrated ability of a nation to conceal CW production and stockpiles, and the decision to utilize an international inspection team to monitor both chemical weapon destruction and ongoing compliance.

1. Magnitude of the CW Inspection and Destruction Effort

Despite the sweeping latitude provided the UN Special Commission, Iraq's limited cooperation in the nuclear arena is the first illustration of how difficult the entire cease-fire disarmament process will be. Further, that limited cooperation raises the question of whether Iraq's declared chemical capabilities can be believed. Iraq claimed that all 16 chemical weapons research and production sites were

destroyed by allied bombing. However, U.S. government analysts estimate that Iraq is secretly harboring tons of additional chemical agents.[129] The UN Special Commission is responsible for finding and destroying those declared and undeclared stockpiles.

The enormity of the Iraqi chemical inspection effort is best demonstrated in terms of required manpower and estimated destruction costs. The first UN-organized inspections of suspected and confirmed chemical weapon plants are likely to last more than one month and require up to 200 experts to complete.[130] Once the inspections are completed, the commission must then evaluate several different methods of destroying the weapons. Options range from open pit burning - the quickest and least costly method - to constructing a chemical weapons destruction plant in Iraq.

Initial indications from the commission chairman are that the open pit method "will not be possible due to the environmental and health consequences."[131] Destruction plant operations range from using portable destruction facilities borrowed from the United States, Soviet Union or Canada to building a central destruction facility in Iraq.[132] U.S.

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[129] Smith, "Destroying Iraq's Chemical Arsenal," 1 May 1991.

[130] Ibid.

[131] Ibid.

[132] Ibid.

Army officials familiar with the U.S. chemical weapon furnace on Johnston Atoll estimate that construction of a medium size plant would take three years to complete and cost roughly $200 million.[133]

However, other estimates to construct a site to destroy Iraqi chemical weapons according to strict environmental standards have been placed in the billions of dollars.[134] These higher estimates may be more correct if recent problems at the U.S. facility on Johnston Atoll are any indication of chemical weapon destruction plant reliability. During tests, the Army reported that the Johnston Atoll incinerator leaked trace amounts of chemicals into the air and failed to function 80 percent of the time. On days it operated, the facility destroyed only 50 rockets - far from the designed specifications of 192 rockets per day.[135]

The pending destruction of Iraq's chemical armaments and chemical agents has reinforced many of the concerns associated with verifying a CWC and subsequent destruction of chemical stockpiles. The required size of the Iraqi inspection effort, environmental considerations and

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[133] Ibid.

[134] Sciolino, "Defanging Iraq," 28 April 1991.

[135] Keith Schneider, "U.S. Plan to Burn Chemical Weapons Stirs Public Fear: Delays and Costs Grow," The New York Times, 29 April 1991, p. A1.

exorbitant destruction costs underscore the wide range of verification obstacles still facing the CWC.

2. Ability to Conceal Production and Location

Before the Persian Gulf war, U.S. intelligence experts estimated that Iraq was producing chemical weapons from three known sites. Two other sites were suspected of having production capabilities. After the war Iraq reported 16 chemical weapon research and production sites were destroyed by allied bombing. In initial post-war assessments the Pentagon agreed that all Iraqi chemical sites were destroyed.[136] However, subsequent information provided by an Iraqi defector revealed that Iraq's weapons programs were far more extensive than original estimates. Less than one month after Iraq's initial declaration of stockpiles, Baghdad admitted that it had substantially more chemical weapons than declared.[137]

Intelligence shortcomings on Iraq's chemical capabilities raises important considerations for the CWC. Even against the threat of renewed military options, the Iraqis have withheld information or access to sites and materials. Additionally, repeated attempts by Iraq to conceal information about their weapons programs and the size of their

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[136] Sciolino, "Defanging Iraq," 28 April 1991.

[137] Paul Lewis, "UN Aides Say Iraq May Be Concealing Nuclear Material," The New York Times, 15 June 1991, p. A1.

chemical arsenals raises serious concerns about other suspected chemical weapon states. Potential CWC member states, including Libya, North Korea and South Africa might also be unwilling to cooperate when challenged to reveal chemical weapons information. The case of Iraq demonstrates that even intrusive on-site inspection and the threat of force cannot fully deter a state from chemical proliferation.

Further, the size of the Iraqi chemical arsenal raises the serious question of how chemical arms control can be conducted with countries that may not possess the political will to help.[138] While there is no easy answer to that question, Iraq's extensive chemical capabilities demonstrate the need for continued emphasis on supplier controls in the CWC to supplement the political will of nonproliferation by member states.

3. Use of International Body to Monitor Compliance

Possibly the most important precedent in the entire Iraqi disarmament process was the decision to utilize the United Nations to conduct actual weapons destruction. Though assigned many verification duties in the past, never before has that international body been charged with destroying weapons.

Despite Iraq's acceptance of the United Nations as the international body to locate and destroy its weapons of mass

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[138] Sciolino, "Defanging Iraq," 28 April 1991.

destruction, Iraq's initial response to Resolution 687 was one of severe resistance. Iraqi officials argued that proposed inspections of its military and scientific installations by an international commission were extreme infringements upon its sovereignty and endangered Iraq's national security.

It was not until 19 May 1991, when the Security Council threatened to suspend the cease-fire arrangement, that Iraq agreed to the demands of the Special Commission. Iraq agreed to grant the inspectors immediate access to any site or factory they wanted to check. The commission was also granted the right to take materials and chemical samples out of the country for analysis, to conduct aerial inspection and to question Iraqi officials about their work on demand.[139]

Although Iraq eventually accepted the demands of the UN-backed commission, its compliance with those demands can be depicted as less than forthcoming. A spokesman for the commission, Johan Molander, stated that Iraq has not cooperated in any of the major areas but has cooperated, to a small extent, in the search for chemical and biological weapons. He believes that Iraq is concerned with the deteriorating stability of those weapons and would prefer their destruction.[140]

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[139] Paul Lewis, "Iraq Accepts UN System for Weapons Inspection," The New York Times, 18 May 1991. p. A1.

[140] Paul Lewis, "UN Says Iraq Stalls on Arms," The New York Times, 12 September 1991.

Another possible explanation for Iraq's limited cooperation regarding chemical and biological capabilities, but not nuclear, could be related to the amount of investment in those individual programs. The Iraqis are unwilling to cooperate in the search for nuclear-related data and materials because of the tremendous amount of capital invested in that area. On the other hand, their chemical weapons capabilities were relatively inexpensive to obtain and could be easily and cheaply reconstituted in the future.

Nonetheless, while the inspection effort can be characterized as a game of cat-and-mouse between members of the commission and Iraqi officials, much has been discovered about Iraqi capabilities and many weapons have been destroyed. Through the development and performance of the UN Special Commission in Iraq, the UN Security Council has established an important precedent for the United Nations in arms control verification and weapons destruction. This precedent should not be overlooked by the Chemical Weapons Convention because the CWC is the first global treaty that includes both disarmament and destruction provisions.

C. DISSIMILARITIES BETWEEN IRAQI CW DISARMAMENT AND THE CWC

The nation of Iraq was summarily defeated in the Persian Gulf war. In order to guard against future acts of Iraqi aggression, sweeping post-war disarmament and verification provisions were supported by the United Nations Security

Council and included in Resolution 687. The intrusive nature of those provisions, including provisions for future ongoing monitoring and verification of Iraq's compliance, is unprecedented in the history of the United Nations. The defeated status of Iraq, allied threats to renew military action to gain inspection concessions and the reliance of the Special Commission on externally provided intelligence data make Iraqi chemical disarmament decidedly unique.

1. Defeated Status of Iraq

Throughout the post-war disarmament process, Iraq has attempted to frustrate the work of the commission and prevent them from completing their task. Iraq proposed limitations on the inspection conditions which sought to prohibit aerial photography, restrict UN flights from certain locations, place time limits on inspections and require the placement of Iraqi officials on board all flights. All of these proposals were denied by the Security Council.

Detailed provisions outlining Iraq's long-term compliance are expected to be finalized shortly. The draft resolution requires Iraq to report on a range of scientific, industrial and military activities and to submit reports on those actions to the United Nations. The resolution also provides for the continuance of highly intrusive inspections to guard against cheating by allowing indefinite freedom of travel for UN inspection teams and the right to enter all

buildings and sites to remove forbidden materials. In short, the resolution details the price Iraq must pay in national sovereignty as a result of its defeat following the invasion of Kuwait.[141]

Iraqi efforts to ease tough rules on intrusive verification and on-site inspections bear some resemblance to a recent U.S. policy reversal on challenge inspections in the Chemical Weapons Convention. Instead of granting international inspectors an immediate right of access to challenged sites, the United States now proposes managed access to sensitive civilian and military installations.[142]

The United States government claims there are substantive differences between insistence on complete access to Iraqi sites and other inspection regimes. Administration officials assert that Iraq has repeatedly violated its pledge to open its sites to inspections as mandated in Resolution 687. Additionally, Iraq has concealed weapons, provided inaccurate weapons data and denied that certain weapons ever existed. As a result, intrusive inspections are required to ensure Iraq's compliance with the resolution.[143]

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[141] Paul Lewis, "Allies to Detail Ban on Iraqi Arms: UN is Expected to Approve Proposal to Enforce Curbs Accepted by Baghdad," The New York Times, 9 October 1991, p. A6.

[142] Lewis, "U.S. Now Prefers Limited Inspection," p. A1.

[143] Ibid.

2. Rattling the Saber: The Allied Threat of Force

On 26 September 1991, based upon the findings of the UN Special Commission and other intelligence sources, U.S. administration officials declared Iraq's nuclear, chemical and biological programs to be currently dormant. However, destruction of those weapons remains incomplete and Iraq still maintains the potential and desire to rebuild those capabilities.[144]

To attain even this limited level of cooperation with UN inspection teams, allied forces have repeatedly threatened military intervention against the Iraqi government. In a letter to Congress, President Bush warned: "The United States will not tolerate the continuation of this situation, and if necessary will take action to ensure Iraqi compliance with the Council's decisions so as to fully implement Resolution 687's call for the restoration of international peace and security to the Middle East."[145] Others, including Senator D'Amato, Republican of New York, support that use of force. He urged President Bush to:

deliver another message to Saddam Hussein: 'If you force us to commit troops to Iraq again, this time things will be

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[144] Michael Wines, "U.S. Is Building Up a Picture of Vast Iraqi Atom Program," The New York Times, 27 September 1991, p. A6.

[145] George Bush, "Text of Letter From Bush: 'Deception and Concealment'," The New York Times, 19 September 1991, p. A8.

different. This time, they'll be sent to bring you back dead or alive.'[146]

The allied resolve to enforce Resolution 687 by resort to military force highlights the distinct difference between chemical verification in post-war Iraq and verification requirements of the CWC. Verification provisions of a Chemical Weapons Convention will unlikely include the threat of force for non-compliance.

3. Externally Provided Intelligence Data

The final major dissimilarity between Iraqi chemical disarmament and the CWC involves the reliance of the UN inspection teams on externally provided intelligence data. United Nations inspection teams in Iraq received U.S. reconnaissance satellite photographs of nuclear enrichment equipment being covertly stored at weapons sites, locating data from U.S. Global Positioning Satellites, and particularly useful weapons information from at least three Iraqi civilian engineer defectors.[147] Additionally, U.S. provided satellite photographs revealed the movement of sensitive equipment, hidden in garages and moved aboard trucks at night, and by one account, the burying of chemical weapons containers in

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[146] Andrew Rosenthal, "U.S. Warns Iraqis It May Use Force To Inspect Arms," The New York Times, 19 September 1991, p. A1.

[147] R. Jeffrey Smith, "Iraqis Tried to Deceive UN Nuclear Inspectors," The Washington Post, 29 June 1991, p. A16.

graveyards.[148] When surprised by disclosures that Iraq continued prohibited weapons research, the UN Special Commission requested U-2 flights be flown by the United States to assist the commission with its aerial reconnaissance efforts.[149]

Despite this precedent of sharing allied intelligence data with United Nations inspectors, it is difficult to estimate any future level of cooperation regarding sensitive intelligence methods and information. Clearly, challenge inspections within the CWC may arise based upon national technical methods (NTM) of intelligence gathering. However, the extent that a nation may choose to reveal its NTM capabilities or share that data is uncertain.

Currently, there are no provisions for the CWC verification regime to rely upon member-nation NTM intelligence data. However, supplemental NTM intelligence information was crucial to the success of the UN commission in Iraq. That extensive use of U.S.-provided NTM intelligence data can serve as a valuable lesson for the CWC. Verification provisions of the CWC must address the many delicate issues encountered when sensitive intelligence data is used to challenge treaty compliance. Additionally, the demonstrated reliance by the commission on that NTM data establishes a need

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[148] Wines, "U.S. is Building Up a Picture," p. A6.

[149] Jerry Gray, "UN Using U.S. Spy Planes to Monitor Iraqi Arms," The New York Times, 13 August 1991.

for the CWC to incorporate the use of NTM in monitoring compliance.

D. AD HOC COMMISSION REASON TO REVISIT OPPOSITION TO UNVA?

Although Iraq initially conceded to all provisions of Resolution 687, the inspection process has been likened, at times, to the comic tenor of a Keystone cops film.[150] Increasingly, the Iraqis have balked at the provisions of the gulf war cease-fire. Iraqi officials have failed to fully disclose weapons data, moved and concealed equipment they claimed did not exist, fired shots at and detained UN inspectors and attempted repeatedly to place restrictions on the inspection effort.

Despite these provocative tactics, the Iraqis have ultimately agreed to all allied and special commission inspection demands. The stern measures of Resolution 687 underscore the advantageous bargaining position of the United Nations Security Council. Diplomatic and military pressures applied by the United Nations and victorious allied countries have guaranteed a slow yet ongoing Iraqi disarmament process. Assisted at times by outside intelligence sources and supported, when necessary, by the threat of allied armed

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[150] John E. Yang and John M. Goshko, "Bush Says Iraq Violates Cease-Fire: Pentagon Preparing Range of Options," The Washington Post, 29 June 1991, p. A1.

force, the commission has functioned well in the inspection and destruction of Iraqi arms.

Unfortunately, the issue of funding weapons destruction remains unresolved. On 19 September 1991, Security Council Resolution 706 authorized the sale of up to $1.6 billion of Iraqi oil. Under strict UN supervision, $1 billion worth of oil revenues would be used for food, medicine and other essential civilian needs for the Iraqi people. The remaining portion of those proceeds would be distributed to the Kuwaiti Compensation Fund and to pay costs incurred by the Special Commission in their efforts to find and destroy Iraq's weapons of mass destruction. To date, Iraq has rejected the UN plan, calling it another intolerable insult to the country's sovereignty. UN officials believe Iraq will eventually start selling the oil, just as it has eventually accepted all the Council's Gulf war resolutions after first denouncing them and refusing to cooperate.

However, if Iraq refuses to release control of that oil to the United Nations, the question remains: Who will pay the costs of destroying Iraq's weapons? The United Nations cannot absorb those exorbitant costs under present dues and assessments and voluntary contributions may not cover all expenses. No precedent exists for the resolution of such an expensive undertaking, yet that issue will ultimately have to be faced. Though not itself a financial solution, a permanent

UN verification agency could provide the forum for investigating methods of payment.

It must also be re-stated that the nation of Iraq is attempting to recover from a resounding military defeat. Its economy and infrastructure remains in shambles and full compliance with Security Council Resolution is one important requirement for the permanent lifting of an Iraqi oil embargo and removal of strict economic sanctions. Iraq's reluctant compliance with UN demands demonstrates not only the uniqueness of this cease-fire disarmament process but the inherent weakness of imposing arms control on a country bent on aggression.

Admittedly, the team is performing its duties in an unusual arms control atmosphere. David Kay, an inspection team leader detained in Baghdad for four days, remarked of the precedent the commission might be setting in the area of arms control. During the standoff between team members and Iraqi officials, he declared:

> We believe that a right of an inspector to conduct an inspection unfettered by restrictions to collect material, remove it and analyze it, is essential to any inspection regime, and at a time in which the world is moving towards more stable politics, to violate that in a matter of this sort is something none of us are prepared to do.[151]

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[151] CNN telephone interview with David Kay, "UN Inspectors Words: 'We're Prepared to Stay'," The New York Times, p. A6.

Unfortunately, broad inspection rights such as challenge inspection without the right of refusal and "open skies" aerial reconnaissance are regarded in the international community as inviolable issues of national sovereignty. In arms control regimes, the voluntary yielding of such power ultimately requires prior consent of the state. The yielding of such rights have not been optional for the state of Iraq.

Thus, the disarmament of Iraq may set a precedent for imposed arms control regimes while providing limited usefulness for voluntary arms control verification. While the disarmament of Iraq may hold organizational and technical lessons for verification regimes, the imposed nature of its provisions do not alone justify a U.S. reversal of its previous opposition to a permanent UN verification agency.

E. SUMMARY

The ad hoc development of the Special Commission to carry out Iraq's post-war disarmament parallels the U.S. position for all arms control regimes. That position is centered on the belief that treaties should be verified on a treaty-specific basis, as agreed to by the negotiating parties. In the case of Iraq, the negotiating parties were the UN Security Council. The Special Commission was established on an ad hoc basis, by those negotiating parties, for a specific purpose - to carry out the provisions of Resolution 687.

As an ad hoc verification body, the commission has successfully conducted its inspection and destruction duties without the advantages of an in-place organization. Supported by the fact that this commission is enforcing imposed conditions, the unique case of Iraqi disarmament does not constitute sole reason for the United States to reverse its position against a permanent UN verification mechanism.

Nonetheless, while the UN Special Commission was quickly established and has proved successful in its ad hoc tasking, there may be other equally compelling arguments for a permanent UN verification body. Foremost among these reasons is the requirement mandated by Resolution 687 for the future monitoring and verification of Iraq's compliance. The indefinite nature of the resolution provides an on-going UN verification role in Iraq for the United Nations. It would be prudent to maintain the current level of technical expertise and capabilities of the Special Commission for this future task. Start-up costs have been borne and personnel, equipment, vehicles and logistic channels currently exist to expand this UN verification assignment to a more permanent assignment.

Further, this in-place UN verification body could meet the on-going requirements of Resolution 687 while continuing to advance verification and destruction techniques developed in Iraq for future arms control verification scenarios.

Expanding the lessons of the Special Commission to a broader scale, the institutional benefits of an in-place organization (presented above in Chapter IV) for the International Atomic Energy Agency might also apply. By examining additional verification roles for a permanent UNVA, certain institutional advantages could be utilized for strengthening other regimes, including the CWC.

Additionally, the deterrence aspect of the IAEA's existence should not be overlooked. That organization serves as a constant reminder to states that nuclear proliferation is a serious matter. A similar institutional body dedicated to chemical weapon deterrence does not currently exist for the CWC. In much the same way the Non-Proliferation Treaty benefitted from the existence of the IAEA, the Chemical Weapons Convention might also gain from a permanent verification institution.

Clearly, the United Nations, through the UN Special Commission, has become an active participant in arms control verification and weapons destruction. Many of the lessons associated with destroying Iraq's chemical weapons will benefit the Chemical Weapons Convention. A unique opportunity exists to enhance the role of the United Nations in the field of arms control verification and establish a permanent institution dedicated to worldwide deterrence, verification, and destruction of weapons of mass destruction.

VI. CONCLUSIONS

To successfully conclude a Chemical Weapons Convention, it is essential to establish a permanent United Nations verification agency. While the United States currently opposes a United Nations role in multilateral arms control verification, successes by the International Atomic Energy Agency in controlling nuclear weapons and the UN Special Commission in the disarmament of Iraq demonstrate a need for the United States to revisit that opposition.

The 30-year history of the International Atomic Energy Agency confirms that a UN-chartered body can perform difficult verification duties. The IAEA has successfully overcome many of the difficult political and technical verification challenges now confronting the CWC. Certain successes of the IAEA, including the resolution of complex issues of national sovereignty, avoidance of politicization within the organization and a demonstrated ability to operate on a multi-tiered level to stem nuclear proliferation, are directly applicable to verifying a ban on chemical weapons.

Despite some critical differences between verifying a Chemical Weapons Convention and verifying the Non-Proliferation Treaty, important lessons from the IAEA exist for the proper structuring of a permanent verification agency. Among the most critical differences are the immense size and

diversity of the chemical industry and the relative ease of production of chemical weaponry.

Clearly, these differences prohibit a simple expansion of the IAEA to handle the distinct verification requirements of a CWC. However, those differences can be used to identify potential weaknesses in the Convention. Increased reliance on supplier controls and the need to avoid any perception of disparity of application among treaty members are important lessons for the CWC derived from IAEA experiences. Additionally, the CWC is explicitly lacking an in-place organization to strengthen the broad norm against chemical proliferation, an important function of deterrence provided by the IAEA within the Non-Proliferation Treaty system.

While the International Atomic Energy Agency is a proven example of the United Nations' importance in global arms control verification, the central role played by the United Nations in the post-war disarmament of Iraq illustrates the emerging importance of that organization in regional arms control verification.

The formation of the Special Commission to inspect and destroy Iraq's weapons of mass destruction is an unprecedented role for the United Nations in the field of verification. By promoting the establishment of that commission, the United States acknowledged that a limited verification role does

indeed exist for the United Nations. Arguably, the development of that commission parallels the U.S. position for treaty-specific verification. It was created by the Security Council for a specific verification role - the post-war disarmament of Iraq. However, the indefinite nature of Resolution 687 and the requirement for future monitoring of certain provisions establishes a permanent nature to that ad hoc tasking.

Obviously, the rigid provisions imposed on Iraq by Resolution 687 are markedly different from most arms control regimes. Nonetheless, both technical and political lessons emerge from Iraq's chemical disarmament for possible use by the Chemical Weapons Convention.

First, attempts at concealment and resistance to the inspection process highlight the magnitude of a global chemical weapons inspection and destruction process. Second, the demonstrated ability by one nation to conceal CW production and maintain large chemical stockpiles focuses attention on the need for on-site inspection and continued emphasis on supplier controls in the CWC. Finally, an important precedent was established with the decision to utilize the United Nations to conduct actual weapons destruction. Although the United Nations has performed many verification duties in the past, never before have those

duties included the destruction of weapons. This precedent is extremely important to the Chemical Weapons Convention because it may be the first global treaty that includes both disarmament and destruction provisions.

The United Nations, with its universal membership and broad experience in the field of disarmament, has an important role to play in the verification of the Chemical Weapons Convention. This thesis examines the degree to which two UN-affiliated bodies, the UN Special Commission in Iraq and the IAEA, accomplished their assigned arms control duties for possible applicability to the Chemical Weapons Convention. While many similarities existed at the organizational level, many crucial dissimilarities existed at the political and technical levels. The verification requirements for a complete ban on chemical weapons are decidedly unique and far too complicated to allow exact modeling on an established institution or Special Commission.

However, while exact parallels between these UN verification roles and the CWC are difficult to conclude, both cases illustrate a significant role for the United Nations in the field of arms control and disarmament. Previously, that step was unimaginable based upon the strained international political climate.

Moreover, when the United States cast the single negative vote against Resolution 43/81 B, a study on the role of the United Nations in the field of verification, the United States claimed that the disarmament machinery in the United Nations needed to be streamlined, not expanded. Additional U.S. displeasure centered on the ever-increasing UN budget.

This thesis argues that U.S. resistance to a UN verification agency was based more on the political and financial climate which existed in the United Nations during the late 1980s and less on substantive grounds.

Nonetheless, that political climate within the United Nations is markedly different today than when the United States opposed that study. Demonstrating renewed support for the United Nations, President Bush recently re-stated U.S. intentions to pay in full annual assessments and to complete arrearage payments no later than 1995.[152]

Admittedly, an improved political climate within the United Nations does not, by itself, support a reversal of U.S. opposition to a UN role in arms control verification. However, in recent years the United Nations has demonstrated that it can achieve multilateral solutions to difficult international problems. The rejuvenation of that institution

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[152] Ibid., 13.

provides a unique opportunity to advance substantive global security issues.

Included in those global security concerns is the completion of a total ban on chemical weapons. The complex nature of verifying the Chemical Weapons Convention, aptly demonstrated by nearly twenty years of in-depth multilateral negotiations, is one reason for the United States to examine its opposition to a permanent UN verification regime.

Potential benefits of a permanent verification agency presented in this thesis center on the need for sharing exorbitant verification costs, the unique challenges in monitoring multinational treaties, and the advantages of an in-place body to address verification concerns before treaty implementation and to handle disputes when they occur.

Multilateral treaties like the CWC dictate that arms control verification be a collective and increasingly cooperative activity.[153] Verifying a Chemical Weapons Convention will require tremendous financial resources and enhance the need for organizational efficiency and economy. A permanent UN verification agency could provide the forum for coordinating verification resources and advancing new proposals in arms control verification.

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[153] F. Ronald Cleminson, "Principles of Verification: The Multilateral Context," In Multilateral Aspects of the Disarmament Debate, (New York: Taylor & Francis, 1989), 137.

Regrettably, precise financial comparisons do not exist between the cost of establishing and operating a permanent UN verification agency and corresponding costs of continuing to verify treaties on an ad hoc treaty-by-treaty basis. Despite the absence of such cost comparisons, estimates for verifying the CWC and other global treaties demonstrate the need for burden-sharing and reducing duplication of effort in the verification of multilateral treaties.

As new multilateral treaties emerge, an umbrella verification organization, under auspices of the United Nations, seems the next likely step in the evolutionary process of the United Nations. That necessary UN role is best supported in the wording of the final paragraph of General Assembly Document A/45/372. It is the report of the Group of Qualified Experts to Undertake a Study on the Role of the United Nations in the Field of Verification in accordance with General Assembly resolution 43/81 B of 7 December 1988.

> The present international situation provides the right environment to engender a dynamic multilateralism. Indeed, the present situation and the complexity of the problems faced by the international community suggest the need to develop a system which can cope with the problems of security and disarmament in a multilateral framework. The United Nations is unique in its global scope, its membership and its Charter. The role played by the United Nations in the recent past in addressing crisis situations is a sign that it is likely to be called upon in the coming years to deal with a number of such situations. With the prospect of greater attention being given to achieving multilateral agreements on arms limitation and

> disarmament, an enhanced United Nations capability to assist in verification, with the consent of all States parties to such agreements, could be a significant contribution to international security and co-operation.[154]

Despite its negative vote, the United States participated in that study. The time is appropriate for the United States to reexamine its opposition to a permanent UN verification role. To move forward the Chemical Weapons Convention further encourages that U.S. policy reversal.

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[154] United Nations, General Assembly, Verification in All its Aspects: Study on the Role of the United Nations in the Field of Verification, A/45/372, 28 August 1990, 87.

SELECTED BIBLIOGRAPHY

Adelman, Kenneth. "Chemical Weapons: Restoring the Taboo." Orbis Vol. 30, No. 3 (Fall 1986): 443-55.

_____. "Why Verification is More Difficult (and Less Important)." International Security Vol. 14, No. 4 (Spring 1990): 141-46

Arms Control and Disarmament Amendments Act of 1989. U.S. Code. Vol. 22, Secs. 2251. (1989).

Arms Control Association. "Chemical Arms Control After the Paris Conference." Arms Control Today Vol. 19, No. 1 (January/February 1989): 3-6.

Bailey, Kathleen C. "Chemical Weapons Proliferation: Reliable and Effective Verification." Vital Speeches of the Day Vol. LIV, No. 24 (1 October 1988): 749-51.

Banks, Tony. "Fighting to Stem the Tide: International Attempts to Halt Proliferation of Chemical Weapons Have Met With Little Success." Jane's Defense Weekly, 14 July 1990, 51.

Bellany, Ian and Coit D. Blacker, eds. The Verification of Arms Control Agreements. London: Frank Cass and Company Limited, 1983.

Belonogov, Aleksandr M. "Soviet Peace-Keeping Proposals." Survival (May/June 1990): 206-11.

Boatman, John, Holly Porteous, and Barbara Starr. "Trust But Verify." Jane's Defence Weekly, 24 November 1990, 1035.

Bond, David F. "OSIA Would Remain Low-Tech for START, CFE Verification." Aviation Week & Space Technology, 6 August 1990, 57.

Bowman, Steven R. "Chemical Weapons: U.S. Arms Control Negotiations and Destruction." In CRS Issue Brief, updated 19 July 1991. Congressional Research Service. Foreign Affairs and National Defense Division. The Library of Congress, 1991.

_____ . "Chemical Weapons Proliferation: Issues for Congress." In CRS Issue Brief, updated 20 June 1991. Congressional Research Service. Foreign Affairs and National Defense Division. The Library of Congress, 1991.

Bradford, David L. On-Site Inspection As An Enhancement to Verification Alexandria, VA: Defense Nuclear Agency, 1989.

Bush, George. "State of the Union: Leading 'the Continuing Struggle for Struggle'." New York Times, 30 January 1990, A8.

Bush, George. The National Security Strategy of the United States. Washington, D.C.: GPO, August 1991.

Canada. Verification Research Unit of External Affairs and International Trade. The Chemical Weapons Convention and The International Inspectorate: A Quantitative Study. August 1990.

Carnesale, Albert and Richard N. Haass, eds. Superpower Arms Control: Setting the Record Straight. Cambridge: Ballinger Publishing Company, 1987.

Center For Defense Information. "U.S. Chemical Weapons Production: Poisoning the Atmosphere." The Defense Monitor Vol. XVIII, No. 3, 1989.

Chayes, Antonia Handler and Abram Chayes. "From Law Enforcement to Dispute Settlement: A New Approach to Arms Control Verification and Compliance." International Security Vol. 14, No. 4 (Spring 1990): 147-64.

Cheon, Seong W. and Niall M. Fraser. "Arms Control Verification: An Introduction and Literature Survey." Arms Control Vol.9, No.1 (May 1988): 3-58.

Civic, Milutin. "The Disarmament Verification System in the UN," Review of International Affairs Vol XXXIX (5 May 1988): 16-19.

Clarke, Richard A. "Conference Against Chemical Weapons." Department of State Bulletin Vol. 89, No. 2152 (November 1989): 45-7.

Cleminson, F. Ronald. "Principles of Verification: The Multilateral Context." In Multilateral Aspects of the Disarmament Debate. New York: Taylor & Francis, 1989.

Cohen, Eliot A. "The Future of Force and American Strategy." The National Interest (Fall 1990): 3-15.

Dallin, Alexander, Philip J. Farley, and Alexander George, eds., U.S.-Soviet Security Cooperation: Achievements, Failures, Lessons New York: Oxford University, 1988.

Dorn, A. Walter. "The Case for a United Nations Verification Agency." IEEE Technology and Society Magazine Vol. 9, No. 4 (December 1990/January 1991): 16-27.

_____. "UN Should Verify Treaties." The Bulletin of the Atomic Scientists (July/August 1990): 12-3.

Duffy, Gloria. Compliance and the Future of Arms Control: Report of a Project Sponsored by the Center for International Security and Arms Control. Stanford: Stanford University Press, 1988.

Dunn, Lewis A. "Arms Control Verification: Living With Uncertainty." International Security Vol. 14, No. 1 (Spring 1990): 165-75.

_____. "Chemical Weapons Arms Control: Hard Choices for the Bush Administration." Survival (May/June 1989): 209-25.

Dupuy, Trevor N. and Gay M. Hammerman, eds. A Documentary History of Arms Control and Disarmament. Dunn Loring, Virginia: T.N. Dupuy Associates, 1973.

Einhorn, Robert J. "Treaty Compliance." Foreign Policy No. 45 (Winter 1981-82): 29-47.

Feinstein, Lee. "Speak Loudly, Carry a Small Stick." The Bulletin of the Atomic Scientists Vol. 46, No. 10 (December 1990): 8, 48-9.

Flowerree, Charles C. "Elimination of Chemical Weapons: Is Agreement in Sight?" Armed Forces (August 1988): 350-54.

_____. "On Tending Arms Control Agreements." The Washington Quarterly Vol. 13, No. 1 (Winter 1990): 199-214.

Gansler, Jacques S. Affording Defense. Cambridge: MIT Press, 1989.

Graybeal, Sidney N. and Michael Krepon. "The Limitations of On-Site Inspection." The Bulletin of Atomic Scientists (December 1987): 22-6.

_____. "Making Better Use of the Standing Consultative Commission." International Security Vol. 10, No. 2 (Fall 1985): 183-99.

Grier, Peter. "Policing the Treaties." Air Force Magazine (June 1990): 80-3.

Harris, Elisa D. "Stemming the Spread of Chemical Weapons." The Brookings Review (Winter 1989/90): 39-45.

Henderson, Breck W. "Arms Control Pacts May Outpace Advances in Verification Technology." Aviation Week & Space Technology, 6 August 1990, 51.

Henkin, Louis. Arms Control and Inspection in American Law. New York: Columbia University Press, 1958.

Hughes, David. "U.S., Soviet Impasse on Open Skies Reveals Key Differences on Overflights." Aviation Week & Space Technology, 6 August 1990, 59.

Jasani, Bhupendra and Toshibomi Sakata, eds., Satellites for Arms Control and Crisis Monitoring SIPRI, Stockholm International Peace Research Institute, Oxford: Oxford University Press,1987.

Jasani, Bhupendra. "Arms Control: Verification by Satellite." International Defense Review (June 1990): 643-46.

Jones, David T. "Eliminating Chemical Weapons: Less Than Meets the Eye." The Washington Quarterly Vol. 12, No. 2 (Spring 1989): 83-92.

Keeley, James F. International Atomic Energy Agency Safeguards: Observations on Lessons for Verifying a Chemical Weapons Convention, September 1988 , by The Arms Control and Disarmament Division, Department of External Affairs. Ottawa, Canada, 1988.

Kemp, Ian. "Verification the Key to Global Chemical Ban." Jane's Defence Weekly, 7 October 1989, 704.

Krass, Allan S. Verification - How Much is Enough? SIPRI, Stockholm International Peace Research Institute, Lexington: D.C. Heath and Company, 1985.

Krepon, Michael and Jeffrey P. Tracey. "Open Skies and UN Peacekeeping." Survival (May/June 1990): 251-63.

Krepon, Michael. "Verification of Conventional Arms Reductions." Survival (November/December 1988): 544-55.

Lau, A. "A Comprehensive Approach for Elaborating Regimes for Chemicals in a Future Chemical Weapons Convention." In The Chemical Industry and the Projected Chemical Weapons Convention, Vol.II, by the Stockholm International Peace Research Institute. Oxford: Oxford University Press, 1988, 116-19.

Lewis, Paul. "U.S. Now Prefers Limited Inspection of Chemical Arms." The New York Times 14 August 1991.

Morrocco, John D. "Verification Raises Cost, Technology Concerns." Aviation Week & Space Technology, 6 August 1990, 44.

Norton, Augustus R. and Thomas G. Weiss. "Superpowers and Peace-Keepers." Survival (May/June 1990): 212-21.

Nye, Joseph S., Jr. "Arms control After the Cold War." Foreign Affairs (Winter 1989/1990): 42-64.

Oerlich, Ivan. "The Changing Rules of Arms Control Verification: Confidence is Still Possible." International Security Vol. 14, No. 4 (Spring 1990): 176-84.

Olson, Kyle B. "The U.S. Chemical Industry Can Live With A Chemical Weapons Convention." Arms Control Today (November 1989): 21-25.

Ooms, A. Jack. "Chemical Weapons: Is Revulsion a Safeguard?" The Atlantic Community Quarterly Vol. 24, No. 2 (Summer 1986): 157-66.

Pieragostini, Karl. "Arms Control Verification: Cooperating to Reduce Uncertainty." The Journal of Conflict Resolution Vol. 30, No. 3 (September 1986): 420-44.

Pohling-Brown, Pamela and Brigitte Sauerwein. "Tools and Techniques of Verification." International Defense Review Vol. 24 (May 1991): 407-8.

Randal, Jonathan C. "UN Experts Set to Inspect Iraq's Sites: Visit is First Step in Arms Reduction." The Washington Post 16 May 1991.

Roblat, J. and V.I. Goldanskii, eds. Global Problems and Common Security: Annals of Pugwash 1988. Berlin: Springer-Verlag, 1989.

Scheinman, Lawrence. The Nonproliferation Role of the International Atomic Energy Agency: A Critical Assessment. Washington, D.C.: Resources for the Future, 1985.

_____. The International Atomic Energy Agency and World Nuclear Order. Washington, D.C.: Resources for the Future, 1987.

Sciolino, Elaine. "Defanging Iraq: The Dauntingly Expensive Task of Imposing Arms Control." The New York Times 28 April 1991.

Shearer, Richard L., Jr. On-Site Inspection for Arms Control. National Security Affairs Monograph Series 84-7. Washington: National Defense University, 1984.

Simpson, John and Darryl Howlett. "The 1990 NPT Review Conference." Survival Vol. XXXII, No. 4 (July/August 1990): 349-60.

Smith, R. Jeffrey. "Destroying Iraq's Chemical Arsenal Expected to Be Lengthy Task for UN." The Washington Post 1 May 1991.

Sutherland, R.G. "The Chemical Weapons Convention and Multilateral Verification." IEEE Technology and Society Vol. 9, No. 4 (December 1990/January 1991): 12-15.

United Nations. General Assembly. Verification in All its Aspects: Study on the Role of the United Nations in the Field of Verification, A/45/372. 28 August 1990.

United Nations. Secretariat. Department for Disarmament Affairs, The United Nations Disarmament Yearbook 1984 Vol. 9, 1985.

United Nations. Secretariat. Department for Disarmament Affairs, The United Nations Disarmament Yearbook 1988 Vol. 13, 1989.

United Nations. Secretariat. Department for Disarmament Affairs, The United Nations Disarmament Yearbook 1989 Vol. 14, 1990.

United Nations. Secretariat. Department for Disarmament Affairs, Multilateral Aspects of the Disarmament Debate, 1989.

United Nations. Security Council. "Excerpts From Draft UN Council Resolution on the Cease-Fire in the Gulf." In The New York Times 3 April 1991.

United Nations. United Nations Institute for Disarmament Research. Verification: The Soviet Stance. UNIDIR/90/34, 1990.

U.S. Arms Control and Disarmament Agency. Verification: The Critical Element of Arms Control. Washington, D.C.: GPO, 1976.

U.S. Arms Control and Disarmament Agency. Arms Control and Disarmament Agreements: Texts and Histories of the Negotiations. Washington, D.C.: GPO, 1990.

U.S. Congress. Congressional Budget Office. U.S. Costs of Verification and Compliance Under Pending Arms Treaties. Washington, D.C.: GPO, September 1990.

U.S. Congress. House. Armed Services Committee. Intelligence Issues: Statement before the Seapower, Strategic, and Critical Materials Subcommittee. 14 March 1990.

U.S. Congress. House. Committee on Foreign Affairs. Chemical Weapons Proliferation. 101st. Cong., 1st. Sess., May 4 and July 27, 1989.

U.S. Congress. House. Committee on Foreign Affairs. Status of U.S. Arms Control Policy. 101st. Cong., 2nd. Sess., March 1, 14, and 21, 1990.

U.S. Congress. Office of Technology Assessment. Verification Technologies: Managing Research and Development for Cooperative Arms Control Monitoring Measures. Washington, D.C.: GPO, May 1991

U.S. Congress. Senate. Proceedings and Debates. 98th Cong., 1st sess. Congressional Record (22 September 1983), vol.129, no.123.

U.S. Congress. Senate. Committee on Foreign Relations. Chemical and Biological Weapons Threat: The Urgent Need for Remedies. 101st. Cong., 1st. Sess., January 24, March 1, and May 9, 1989.

U.S. Department of State. Bureau of Public Affairs. The UN: World Parliament of Peace by President Bush. Current Policy No. 1303. Washington, D.C.: GPO, 1990.

U.S. Department of State. Bureau of Public Affairs. The United Nations and Disarmament by Richard S. Williamson. Current Policy No. 1077. Washington, D.C.: GPO, 1988.

U.S. Department of State. Documents on Disarmament 1945-1959. Washington, D.C.: Government Printing Office, 1960.

Von Laue, Theodore H. The World Revolution of Westernization: The Twentieth Century in Global Perspective. New York: Oxford University Press, 1987.

Williamson, Richard S. "The United Nations: Some Parts Work." Orbis Vol. 32, No. 2 (Spring 1988): 187-97.

Wines, Michael. "U.S. Is Building Up a Picture of Vast Iraqi Atom Program." The New York Times 27 September 1991.

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